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PROCEEDINGS

OF

The American Association

FOR THE

ADVANCEMENT OF SCIENCE,

FIFTY-EIGHTH MEETING

HELD AT

CHICAGO, ILLINOIS,

DECEMBER, 1907,–JANUARY, 1908.

PUBLISHED BY THE PERMANENT SECRETARY,

1908.

EDITED BY

L. O. HOWARD,

Permanent Secretary.

PRESS OF GIBSON BROS.
WASHINGTON, D. C.
1908.

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*All Committees are expected to present their reports to the COUNCIL not later than the third day of the meeting. Committees sending their reports to the Permanent Secretary one month before a meeting can have them printed for use at the meeting.

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Meetings and Officers of the Association of American Geologists and Naturalists.

Meeting.	Date.	Place.	Chairman.	Secretary.	Assistant Secretary.	Treasurer.
1st	April 2, 1840,	Philadelphia,	Edw. Hitchcock,*	L. C. Beck,*		
2d	April 5, 1841,	Philadelphia,	Benj. Silliman,*	L. C. Beck,*	B. Silliman, Jr.,* C. B. Trego,*	
3d	April 25, 1842,	Boston,	S. G. Morton,*	C. T. Jackson,*	J. D. Whitney,* M. B. Williams,*	
4th	April 26, 1843,	Albany,	Henry D. Rogers,*	B. Silliman, Jr.,*		John Locke.*
5th	May 8, 1844,	Washington,	John Locke,*	B. Silliman, Jr.,* O. P. Hubbard,		Douglas Houghton.*
6th	April 30, 1845,	New Haven,	Wm. B. Rogers,*	B. Silliman, Jr.,* J. Law. Smith,*		Douglas Houghton.*
7th	Sept. 2, 1846,	New York,	C. T. Jackson,*	B. Silliman, Jr.,*		E. C. Herrick.*
8th	Sept. 20, 1847,	Boston,	Wm B. Rogers,*†	Jeffries Wyman,*		B. Silliman, Jr.*

* Deceased.

† Professor Rogers, as chairman of this last meeting, called the first meeting of the new Association to order and presided unt l it was fully organized by the adoption of a constitution. As he was thus the first presiding officer of the new Association, it was directed at the Hartford meeting that his name be placed at the head of the Past Presidents of the American Association for the Advancement of Science.

Meetings	Place	Date	Members in attendance	Number of members
1	Philadelphia	Sept. 20, 1848	?	461
2	Cambridge	Aug. 14, 1849	?	540
3	Charleston	Mar. 12, 1850	?	622
4	New Haven	Aug. 19, 1850	?	704
5	Cincinnati	May 5, 1851	87	800
6	Albany	Aug. 19, 1851	194	769
7	Cleveland	July 28, 1853	?	940
8	Washington	April 26, 1854	168	1004
9	Providence	Aug. 15, 1855	166	605
10	2d Albany	Aug. 20, 1856	381	722
11	Montreal	Aug. 12, 1857	351	946
12	Baltimore	April 28, 1858	190	962
13	Springfield	Aug. 3, 1859	190	862
14	Newport	Aug. 1, 1860	135	644
15	Buffalo	Aug. 15, 1866	79	637
16	Burlington	Aug. 21, 1867	73	415
17	Chicago	Aug. 5, 1868	259	686
18	Salem	Aug. 18, 1869	244	511
19	Troy	Aug. 17, 1870	188	536
20	Indianapolis	Aug. 16, 1871	196	668
21	Dubuque	Aug. 15, 1872	164	610
22	Portland	Aug. 20, 1873	195	670
23	Hartford	Aug. 12, 1874	224	722
24	Detroit	Aug. 11, 1875	165	807
25	2d Buffalo	Aug. 23, 1876	215	867
26	Nashville	Aug. 29, 1877	173	953
27	St. Louis	Aug. 21, 1878	134	962
28	Saratoga	Aug. 27, 1879	256	1030
29	Boston	Aug. 25, 1880	997	1555
30	2d Cincinnati	Aug. 17, 1881	500	1699
31	2d Montreal	Aug. 23, 1882	937	1922
32	Minneapolis	Aug. 15, 1883	328	2033
33	2d Philadelphia	Sept. 3, 1884	1261*	1981
34	Ann Arbor	Aug. 26, 1885	364	1956
35	3d Buffalo	Aug. 18, 1886	445	1886
36	New York	Aug. 10, 1887	729	1956
37	2d Cleveland	Aug. 14, 1888	342	1964
38	Toronto	Aug. 26, 1889	424	1952
39	2d Indianapolis	Aug. 19, 1890	364	1944
40	2d Washington	Aug. 19, 1891	653†	2054
41	Rochester	Aug. 17, 1892	456	2037
42	Madison	Aug. 17, 1893	290	1939
43	Brooklyn	Aug. 15, 1894	488	1802
44	2d Springfield	Aug. 28, 1895	368	1913
45	4th Buffalo	Aug. 24, 1896	333	1890
46	2d Detroit	Aug. 9, 1897	283‡	1782
47	2d Boston	Aug. 22, 1898	903	1729
48	Columbus	Aug. 21, 1899	353	1721
49	2d New York	June 25, 1900	434	1925
50	Denver	Aug. 24, 1901	311	2703
51	Pittsburg	June 28 to July 3, 1902	435	3473
52	3d Washington	Dec. 27, 1902, to Jan. 2, 1903	975	3596
53	2d St. Louis	Dec. 28, 1903, to Jan. 2, 1904	385	4075
54	3d Philadelphia	Dec. 27–31, 1904	890	4175
55	New Orleans	Dec. 28, 1905, to Jan. 2, 1906	233	4357
56	Ithaca	June 28 to July 3, 1906.	232	4425
57	3d New York	Dec. 27, 1906, to Jan. 2, 1907.	931	4498
58	2d Chicago	Dec. 30, 1907, to Jan. 4, 1908.	725	4727

* Including 301 Members of the British Association and 9 other foreign guests.
† Including 24 Foreign Honorary Members for the meeting.
‡ Including 15 Foreign Honorary Members and Associates for the meeting.

Officers of the Meetings of the Association.

[The number before the name is that of the meeting; the year of the meeting follows the name; the asterisk after a name indicates that the member is deceased.]

PRESIDENTS.

1. { WM. B. ROGERS,* 1848.
   { W. C. REDFIELD,* 1848.
2. JOSEPH HENRY,* 1849.
3. { A. D. BACHE,* March meeting, 1850, in the absence of JOSEPH HENRY.*
4. { August meeting, 1850.
5. { May meeting, 1851.
6. LOUIS AGASSIZ,* August meeting, 1851.
   (No meeting in 1852.)
7. BENJAMIN PIERCE,* 1853.
8. JAMES D. DANA,* 1854.
9. JOHN TORREY,* 1855.
10. JAMES HALL,* 1856.
11. { ALEXIS CASWELL,* 1857, in place of J. W. BAILEY,* deceased. 1858, in the absence of JEFFRIES WYMAN.*
12. {
13. STEPHEN ALEXANDER,* 1859.
14. ISAAC LEA,* 1860.
    (No meetings for 1861–65.)
15. F. A. P. BARNARD,* 1866.
16. J. S. NEWBERRY,* 1867.
17. B. A. GOULD,* 1868.
18. J. W. FOSTER,* 1869.
19. T. STERRY HUNT,* 1870, in the absence of WM. CHAUVENET.*
20. ASA GRAY,* 1871.
21. J. LAWRENCE SMITH,* 1872.
22. JOSEPH LOVERING,* 1873.
23. J. L. LECONTE,* 1874.
24. J. E. HILGARD,* 1875.
25. WILLIAM B. ROGERS,* 1876.
26. SIMON NEWCOMB, 1877.
27. O. C. MARSH,* 1878.
28. G. F. BARKER, 1879.
29. LEWIS H. MORGAN,* 1880.
30. G. J. BRUSH, 1881.
31. J. W. DAWSON, 1882.
32. C. A. YOUNG, 1883.
33. J. P. LESLEY,* 1884.
34. H. A. NEWTON,* 1885.
35. EDWARD S. MORSE, 1886.
36. S. P. LANGLEY,* 1887.
37. J. W. POWELL,* 1888.
38. T. C. MENDENHALL, 1889.
39. G. LINCOLN GOODALE, 1890.
40. ALBERT B. PRESCOTT,* 1891.
41. JOSEPH LECONTE,* 1892.
42. WILLIAM HARKNESS,* 1893.
43. DANIEL G. BRINTON,* 1894.
44. E. W. MORLEY, 1895.
45. { EDWARD D. COPE,* 1896. THEODORE GILL, as senior vice-president acted after the death of Prof. COPE.
46. { WOLCOTT GIBBS, 1897, absent. W J MCGEE, Acting President.
47. F. W. PUTNAM, 1898.
48. { EDWARD ORTON,* 1899. GROVE K. GILBERT, elected by the General Committee December, 1899. to fill the vacancy caused by the death of Prof. ORTON.
49. R. S. WOODWARD, 1900.

50. C. S. MINOT, 1901.
51. ASAPH HALL,* 1902.
52. IRA REMSEN, 1903.
53. CARROLL D. WRIGHT, 1904.
54. W. G. FARLOW, 1905.
55. C. M. WOODWARD, 1906.
56. W. H. WELCH, 1906.
57. W. H. WELCH, 1907.
58. E. L. NICHOLS, 1908.

VICE-PRESIDENTS.

There were no Vice-Presidents until the 11th meeting, when there was a single Vice-President for each meeting. At the 24th meeting, the Association met in Sections A and B, each presided over by a Vice-President. At the 31st meeting nine sections were organized, each with a Vice-President as its presiding officer. In 1886 Section G (Microscopy) was given up. In 1892, Section F was divided into F, Zoology; G, Botany.

1857–1874.

11. ALEXIS CASWELL,* 1857, acted as President.
12. JOHN E. HOLBROOK,* 1858, not present.
13. EDWARD HITCHCOCK,* 1859.
14. B. A. GOULD,* 1860.
15. B. A. GOULD,* 1866, in the absence of R. W GIBBES.
16. WOLCOTT GIBBS, 1867.
17. CHAS. WHITTLESEY,* 1868.
18. OGDEN N. ROOD, 1869.
19. T. STERRY HUNT,* 1870, acted as President.
20. G. F. BARKER, 1871.
21. ALEX. WINCHELL,* 1872.
22. A. H. WORTHEN,* 1873, not present.
23. C. S. LYMAN,* 1874.

1875–1881.

Section A.—Mathematics, Physics, and Chemistry.

24. H. A. NEWTON,* 1875.
25. C. A. YOUNG, 1876.
26. R. H. THURSTON,* 1877, in the absence of E. C. PICKERING.
27. R. H. THURSTON,* 1878.
28. S. P. LANGLEY,* 1879.
29. ASAPH HALL,* 1880.
30. WM. HARKNESS,* 1881, in the absence of A. M. MAYER.*

Section B.—Natural History.

24. J. W. DAWSON, 1875.
25. EDWARD S. MORSE, 1876.
26. O. C. MARSH,* 1877.
27. AUG R. GROTE. 1878.
28. J. W. POWELL,* 1879.
29. ALEX. AGASSIZ, 1880.
30 EDWARD T. COX, 1881, in the absence of GEORGE ENGELMANN.*

CHAIRMEN OF SUBSECTIONS, 1875–1881.

Subsection of Chemistry.

24. S. W. JOHNSON, 1875.
25. G. F. BARKER, 1876.
26. N. T. LUPTON,* 1877.
27. F W. CLARKE, 1878.
28. F. W. CLARKE, 1879, in the absence of IRA REMSEN.
29. J. M. ORDWAY, 1880.
30. G. C. CALDWELL, 1881, in the absence of W. R. NICHOLS.*.

Subsection of Microscopy.

25. R. H. WARD, 1876.
26 R. H. WARD, 1877.
27. R. H. WARD, 1878, in the absence of G. S. BLACKIE.*
28. E. W. MORLEY, 1879.
29. S. A. LATTIMORE, 1880.
30. A. B. HERVEY, 1881.

Subsection of Anthropology.

24. LEWIS H. MORGAN,* 1875.
25. LEWIS H. MORGAN,* 1876.
26. DANIEL WILSON,* 1877, not present
27. United with Section B.
28. DANIEL WILSON,* 1879.
29. J. W. POWELL,* 1880.
30. GARRICK MALLERY,* 1881.

Subsection of Entomology.

30. J. G. MORRIS,* 1881.

VICE-PRESIDENTS OF SECTIONS, 1882–

Section A.—Mathematics and Astronomy.

31. W. A. ROGERS,* 1882, in the absence of WM. HARKNESS.*
32. W. A. ROGERS,* 1883.
33. H. T. EDDY, 1884.
34. WM. HARKNESS,* 1885, in the absence of J. M. VAN VLECK.
35. J. W. GIBBS,* 1886.
36. J. R. EASTMAN, 1887, in place of W. FERREL,* res'd.
37. ORMOND STONE, 1888.
38. R. S. WOODWARD, 1889.
39. S. C. CHANDLER, 1890.
40. E. W. HYDE, 1891.
41. J. R. EASTMAN, 1892.
42. C. L. DOOLITTLE, 1893.
43. { G. C. COMSTOCK, 1894. / EDGAR FRISBY, 1894.
44. EDGAR FRISBY, 1895, in place of E. H. HOLDEN, resigned.
45. ALEX. MACFARLANE, 1896, in place of WM. E. STORY, resigned.
46. W. W. BEMAN, 1897.
47. E. E. BARNARD, 1898.
48. ALEX. MACFARLANE, 1899.
49. ASAPH HALL, JR., 1900.
50. JAMES MACMAHON, 1901.
51. G. W. HOUGH, 1902.
52. GEORGE BRUCE HALSTED, 1903.
53. O. H. TITTMANN, 1904.
54. ALEXANDER ZIWET, 1905.
55. ALEXANDER ZIWET, 1906, in the absence of W. S. EICHELBERGER.
56. EDWARD KASNER, 1906.
57. EDWARD KASNER, 1907.
58. E. O. LOVETT, 1908.

Section B.—Physics.

31. T. C. MENDENHALL, 1882.
32. H. A. ROWLAND,* 1883.

VICE-PRESIDENTS OF SECTIONS, CONTINUED.

33. J. TROWBRIDGE, 1884.
34. S. P. LANGLEY,* 1885, in place of C. F. BRACKETT, res'd.
35. C. F. BRACKETT, 1886.
36. W. A. ANTHONY, 1887.
37. A. A. MICHELSON, 1888.
38. H. S. CARHART, 1889.
39. CLEVELAND ABBE, 1890.
40. F. E. NIPHER, 1891.
41. B. F. THOMAS, 1892.
42. E. L. NICHOLS, 1893.
43. WM. A. ROGERS, 1894.
44. W. LECONTE STEVENS, 1895.
45. CARL LEO MEES, 1896.
46. CARL BARUS, 1897.
47. F. P. WHITMAN, 1898.
48. ELIHU THOMSON, 1899.
49. ERNEST MERRITT, 1900.
50. D. B. BRACE,* 1901.
51. W. S. FRANKLIN, 1902.
52. ERNEST F. NICHOLS, 1903.
53. E. H. HALL, 1904.
54. WM. F. MAGIE, 1905.
55. HENRY CREW, 1906.
56. W. C. SABINE, 1906.
57. W. C. SABINE, 1907.
58. D. C. MILLER, 1908.

Section C.—Chemistry.

31. H. C. BOLTON,* 1882.
32. E. W. MORLEY, 1883.
33. J. W. LANGLEY, 1884.
34. N. T. LUPTON,* 1885, in the absence of W. R. NICHOLS.
35. H. W. WILEY, 1886.
36. A. B. PRESCOTT,* 1887.
37. C. E. MUNROE, 1888.
38. W. L. DUDLEY, 1889.
39. R. B. WARDER, 1890.
40. R. C. KEDZIE, 1891.
41. ALFRED SPRINGER, 1892.
42. EDWARD HART, 1893.
43. T. H. NORTON, 1894.
44. WM. MCMURTRIE, 1895.
45. W. A. NOYES, 1896.
46. W. P. MASON, 1897.
47. EDGAR F. SMITH, 1898.
48. F. P. VENABLE, 1899.
49. JAS. LEWIS HOWE, 1900.
50. JOHN H. LONG, 1901.
51. H. A. WEBER, 1902.
52. CHARLES BASKERVILLE, 1903.
53. W. D. BANCROFT, 1904.
54. L. P. KINNICUTT, 1905.
55. L. P. KINNICUTT, 1906, in absence of C. F. MABERY.
56. CLIFFORD RICHARDSON, 1906.
57. CLIFFORD RICHARDSON, 1907.
58. H. P. TALBOT, 1908.

Section D.—Mechanical Science and Engineering.

31. W. P. TROWBRIDGE,* 1882.
32. DEVOLSON WOOD, 1883, absent, but place was not filled.
33. R. H. THURSTON,* 1884.
34. J BURKITT WEBB, 1885.
35 O. CHANUTE, 1886.
36. E. B. COXE, 1887.
37. C. J. H. WOODBURY, 1888.
38. JAMES E. DENTON, 1889.
39. JAMES E. DENTON, 1890, in place of A. BEARDSLEY, absent.
40. THOMAS GRAY, 1891.
41. J. B JOHNSON, 1892.
42. S. W ROBINSON, 1893.
43. MANSFIELD MERRIMAN, 1894.
44. WILLIAM KENT, 1895.
45. FRANK O. MARVIN, 1896.
46. JOHN GALBRAITH, 1897.
47. JOHN GALBRAITH, 1898, in the absence of M. E. COOLEY.
48. STORM BULL, 1899.
49. JOHN A. BRASHEAR, 1900.
50. H. S. JACOBY, 1901.

VICE-PRESIDENTS OF SECTIONS, CONTINUED.

51. J. J. FLATHER, 1902.
52. CLARENCE A. WALDO, 1903.
53. C. M. WOODWARD, 1904.
54. C. M. WOODWARD, 1905, in the absence of D. S. JACOBUS.
55. F. W. MCNAIR, 1906.
56. W. R. WARNER, 1906.
57. W. R. WARNER, 1907.
58. O. H. LANDRETH, 1908.

Section E.—Geology and Geography.

31. E. T. COX, 1882.
32. C. H. HITCHCOCK, 1883.
33. N. H. WINCHELL, 1884.
34. EDWARD ORTON,* 1885.
35. T. C. CHAMBERLIN, 1886.
36. G. K. GILBERT, 1887.
37. GEORGE H. COOK,* 1888.
38. CHARLES A. WHITE, 1889.
39. JOHN C. BRANNER, 1890.
40. J. J. STEVENSON, 1891.
41. H. S. WILLIAMS, 1892.
42. CHARLES D. WALCOTT, 1893.
43. SAMUEL CALVIN, 1894.
44. JED HOTCHKISS, 1895.
45. B. K EMERSON, 1896.
46. { I. C. WHITE, 1897. / E. W. CLAYPOLE,* 1897. }
47. H. L FAIRCHILD, 1898.
48. J. F. WHITEAVES, 1899
49. J. F. KEMP, 1900.
50. C. R. VAN HISE, 1901.
51. JOSEPH A. HOLMES, 1902, in the absence of O. A. DERBY.
52. WM. M. DAVIS, 1903.
53. I. C. RUSSELL, 1904.
54. EUGENE A. SMITH, 1905.
55. WM. NORTH RICE, 1906.
56. A. C. LANE, 1906.
57 A. C. LANE, 1907.
58. J. P. IDDINGS, 1908.

Section F.—Biology, 1882–1892.

31. W. H. DALL, 1882.
32. W. J. BEAL, 1883.
33. E. D. COPE,* 1884.
34. T. J. BURRILL, 1885, in the absence of B. G. WILDER.
35. H. P. BOWDITCH, 1886.
36. W. G. FARLOW, 1887.
37. C. V. RILEY,* 1888.
38. GEORGE L. GOODALE, 1889.
39. C. S. MINOT, 1890.
40. J. M. COULTER, 1891.
41. S. H. GAGE, 1892.

Section F.—Zoology.

42. HENRY F. OSBORN, 1893.
43. J. A. LINTER,* 1894, in place of S. H. SCUDDER, res'd.
44. L. O. HOWARD, 1895, in place of D. S. JORDAN, res'd.
45. THEO. GILL, 1896.
46. L. O. HOWARD, 1897, in place of G. BROWN GOODE,* deceased.
47. A. S. PACKARD,* 1898.
48. S. H. GAGE, 1899.
49. C. B. DAVENPORT, 1900.
50. D. S. JORDAN, 1901.
51. E. L. MARK, 1902, in the absence of C. C. NUTTING.
52. C. W. HARGITT, 1903.
53. E. L. MARK, 1904.
54. C. HART MERRIAM, 1905.
55. H. B WARD, 1906.
56. E. G. CONKLIN, 1906.
57. E. G. CONKLIN, 1907.
58. E. B. WILSON, 1908.

Section G.—Microscopy, 1882–85.

31. A. H. TUTTLE, 1882.
32. J. D. COX, 1883.

VICE-PRESIDENTS OF THE SECTIONS, CONTINUED.

33. T. G. WORMLEY,* 1884.
34. S. H. GAGE, 1885.
(Section united with F in 1886.)

Section G.—Botany.

42. CHARLES E. BESSEY, 1893.
43. { L. M. UNDERWOOD, 1894.
{ C. E. BESSEY, 1894.
44. J. C. ARTHUR, 1895.
45. N. L. BRITTON, 1896.
46. G. F. ATKINSON, 1897.
47. W. G. FARLOW, 1898.
48. C. R. BARNES, 1899.
49. W. TRELEASE, 1900.
50. B. T. GALLOWAY, 1901.
51. C. E. BESSEY, 1902, in the absence of D. H. CAMPBELL.
52. F. V. COVILLE, 1903.
53. T. H. MACBRIDE, 1904.
54. B. L. ROBINSON, 1905.
55. B. L. ROBINSON, 1906, in the absence of ERWIN F. SMITH.
56. D. T. MACDOUGALL, 1906.
57. D. T. MACDOUGALL, 1907.
58. C. E. BESSEY, 1908.

Section H.—Anthropology and Psychology.

31. ALEX. WINCHELL,* 1882.
32. OTIS T. MASON, 1883.
33. EDWARD S. MORSE, 1884.
34. J. OWEN DORSEY,* 1885, in the absence of W. H. DALL.
35. HORATIO HALE,* 1886.
36. D. G. BRINTON,* 1887.
37. CHARLES C. ABBOTT, 1888.
38. GARRICK MALLERY,* 1889.
39. FRANK BAKER, 1890.
40. JOSEPH JASTROW, 1891.
41. W. H. HOLMES, 1892.
42. J. OWEN DORSEY,* 1893.
43. FRANZ BOAS, 1894.
44. F. H. CUSHING,* 1895.
45. ALICE C. FLETCHER, 1896.
46. W J MCGEE, 1897.
47. J. MCK. CATTELL, 1898.
48. THOMAS WILSON,* 1899.
49. A. W. BUTLER, 1900.
50. J. WALTER FEWKES, 1901.
51. STEWART CULIN, 1902.
52. GEO. A. DORSEY, 1903.
53. M. H. SAVILLE, 1904.
54. WALTER HOUGH, 1905.
55. GEORGE GRANT MCCURDY, 1906.
56. HUGO MUNSTERBERG, 1906.
57. A. L. KROEBER, 1907.
58. FRANZ BOAS, 1908.

Section I.—Social and Economic Science.

31. E. B. ELLIOTT,* 1882.
32. FRANKLIN B. HOUGH,* 1883.
33. JOHN EATON,* 1884.
34. EDWARD ATKINSON, 1885.
35. JOSEPH CUMMINGS,* 1886.
36. H. E. ALVORD,* 1887.
37. CHARLES W. SMILEY, 1888.
38. CHARLES S. HILL, 1889.
39. J. RICHARDS DODGE, 1890.
40. EDMUND J. JAMES, 1891.
41. L. F. WARD, 1892, in place of S. D. HORTON,* resigned.
42. WILLIAM H. BREWER, 1893.
43. HENRY FARQUHAR, 1894.
44. B. E. FERNOW, 1895.
45. W. L. LAZENBY, 1896.
46. R. T. COLBURN, 1897.
47. ARCHIBALD BLUE, 1898
48. MARCUS BENJAMIN, 1899.
49. MARCUS BENJAMIN, 1900, in the absence of C. M. WOODWARD.

VICE-PRESIDENTS OF THE SECTIONS, CONTINUED.

50. JOHN HYDE, 1901.
51. JOHN HYDE, 1902, in the absence of CARROLL D. WRIGHT.
52. H. T. NEWCOMB, 1903.
53. SIMEON E. BALDWIN, 1904.
54. MARTIN A. KNAPP, 1905.
55. IRVING FISHER, 1906.
56. CHAS. A. CONANT, 1906.
57. CHAS. A. CONANT, 1907.
58. JOHN FRANKLIN CROWELL, 1908.

Section K.—Physiology and Experimental Medicine.

51. W. H. WELCH, 1902.
52. W. H. WELCH, 1903.
53. H. P. BOWDITCH, 1904.
54. H. P. BOWDITCH, 1905.
55. ALEXANDER C. ABBOTT, 1906, in the absence of W. T. SEDGWICK.
56. SIMON FLEXNER, 1906.
57. SIMON FLEXNER, 1907.
58. LUDVIG HEKTOEN, 1908.

Section L.—Education.

58. ELMER BROWN, 1908.

SECRETARIES.

General Secretaries, 1848–

1. WALTER R. JOHNSON,* 1848.
2. E. N. HORSFORD,* 1849, in the absence of JEFFRIES WYMAN.*
3. L. R. GIBBS, 1850, in the absence of E. C. HERRICK.*
4. E. C. HERRICK,* 1850.
5. WM. B. ROGERS,* 1851, in the absence of E. C. HERRICK.*
6. WM. B. ROGERS,* 1851.
7. S. ST. JOHN,* 1853, in the absence of J. D. DANA.*
8. J. LAWRENCE SMITH,* 1854.
9. WOLCOTT GIBBS, 1855.
10. B. A. GOULD,* 1856.
11. JOHN L. LECONTE,* 1857.
12. W. M. GILLESPIE,* 1858, in the absence of WM. CHAUVENET.*
13. WM. CHAUVENET,* 1859.
14. JOSEPH LECONTE,* 1860.
15. ELIAS LOOMIS,* 1866, in the absence of W. P. TROWBRIDGE.*
16. C. S. LYMAN,* 1867.
17. SIMON NEWCOMB, 1868, in the absence of A. P. ROCKWELL.
18. O. C. MARSH,* 1869.
19. F. W. PUTNAM, 1870, in the absence of C. F. HARTT.*
20. F. W. PUTNAM, 1871.
21. EDWARD S. MORSE, 1872.
22. C. A. WHITE, 1873.
23. A. C. HAMLIN, 1874.
24. S. H. SCUDDER, 1875.
25. T. C. MENDENHALL, 1876.
26. AUG. R. GROTE, 1877.
27. H. C. BOLTON,* 1878.
28. H. C. BOLTON,* 1879, in the absence of GEORGE LITTLE.
29. J. K. REES, 1880.
30. C. V. RILEY,* 1881.
31. WILLIAM SAUNDERS, 1882.
32. J. R. EASTMAN, 1883.
33. ALFRED SPRINGER, 1884.
34. C. S. MINOT, 1885.
35. S. G. WILLIAMS,* 1886.
36. WILLIAM H. PETTEE, 1887.
37. JULIUS POHLMAN, 1888.
38. C. LEO MEES, 1889.

SECRETARIES, CONTINUED.

39. H. C. BOLTON,* 1890.
40. H. W. WILEY, 1891.
41. A. W. BUTLER, 1892.
42. T. H. NORTON, 1893.
43. H. L. FAIRCHILD, 1894.
44. JAS. LEWIS HOWE, 1895.
45. CHARLES R. BARNES, 1896.
46. ASAPH HALL, JR., 1897.
47. J. MCMAHON, 1898, in place of D.S. KELLICOTT,* deceased.
48. F. BEDELL, 1899.
49. CHAS. BASKERVILLE, 1900.
50. JOHN M. COULTER, 1901, in the absence of WILLIAM HALLOCK.
51. D. T. MACDOUGAL, 1902.
52. HENRY B. WARD, 1903.
53. C. W. STILES, 1904.
54. CHARLES S. HOWE, 1905.
55. C. A. WALDO, 1906.
56. JOHN F. HAYFORD, 1906.
57. JOHN F. HAYFORD, 1907.
58. F. W. MCNAIR, 1908.

Permanent Secretaries, 1851–

5–7. SPENCER F. BAIRD,* 1851–4
8–17. JOSEPH LOVERING,* 1854.–68.
18. F. W. PUTNAM, 1869, in the absence of J. LOVERING.*
19–21. JOSEPH LOVERING,* 1870–73.
22–46. F. W. PUTNAM, 1873–98.
47–54. L. O. HOWARD, 1898–05.
55–60. L. O. HOWARD, 1906–10.

Assistant General Secretaries, 1882–1887.

31. J. R. EASTMAN, 1882.
32. ALFRED SPRINGER, 1883.
33. C. S. MINOT, 1884, in the absence of E. S. HOLDEN.
34. S. G. WILLIAMS,* 1885, in the absence of C. C. ABBOTT.
35. W. H. PETTEE, 1886.
36. J. C. ARTHUR, 1887.

Secretaries of the Council, 1888–

37. C. LEO MEES, 1888.
38. H. C. BOLTON,* 1889.
39. H. W. WILEY, 1890.
40. A. W. BUTLER, 1891.
41. T. H. NORTON, 1892.
42. H. LEROY FAIRCHILD, 1893.
43. JAS. LEWIS HOWE, 1894.
44. CHARLES R. BARNES, 1895.
45. ASAPH HALL, JR., 1896.
46. D. S. KELLICOTT,* 1897.
47. FREDERICK BEDELL, 1898.
48. CHARLES BASKERVILLE, 1899.
49. WILLIAM HALLOCK, 1900.
50. D. T. MACDOUGAL, 1901.
51. H. B. WARD, 1902.
52. CH. WARDELL STILES, 1903.
53. CHAS. S. HOWE, 1904.
54. C. A. WALDO, 1905.
55. JOHN T. HAYFORD, 1906.
56. F. W. MCNAIR, 1906.
57 F. W. MCNAIR, 1907.
58. WILLIAM HARPER DAVIS, 1908.

Secretaries of Section A.—Mathematics, Physics and Chemistry, 1875–1881.

24. { S. P. LANGLEY,* 1875.
{ T. C. MENDENHALL, 1875.
25. A. W. WRIGHT, 1876.
26. H. C. BOLTON,* 1877.
27. F. E. NIPHER, 1878.
28. J. K. REES, 1879.
29. H. B. MASON, 1880.

SECRETARIES, CONTINUED.

30. E.T.TAPPAN, 1881, in the absence of JNO. TROWBRIDGE.

Secretaries of Section B.—Natural History, 1874–1881.

24. EDWARD S. MORSE, 1875.
25. ALBERT H. TUTTLE, 1876.
26. WILLIAM H. DALL, 1877.
27. GEORGE LITTLE, 1878.
28. WM. H. DALL, 1879, in the absence of A. C. WETHERBY.
29. CHARLES V. RILEY,* 1880.
30. WILLIAM SAUNDERS, 1881.

SECRETARIES OF SUBSECTIONS, 1875–1881.

Subsection of Chemistry.

24. F. W. CLARKE, 1875.
25. H. C. BOLTON,* 1876.
26. P. SCHWEITZER, 1877.
27. A. P. S. STUART, 1878.
28. W. R. NICHOLS,* 1879.
29. C. E. MUNROE, 1880.
30. ALFRED SPRINGER, 1881, in the absence of R.B.WARDER.

Subsection of Entomology.

30. B. P. MANN, 1881.

Subsection of Anthropology.

24. F. W. PUTNAM, 1875.
25. OTIS T. MASON, 1876.
26, 27. United with Section B.
28, 29, 30. J. G. HENDERSON, 1879–81.

Subsection of Microscopy.

25. E. W. MORLEY, 1876.
26. T. O. SOMMERS, JR., 1877.
27. G. J. ENGELMANN, 1878.
28, 29. A. B. HERVEY, 1879–80.
30. W. H. SEAMAN, 1881, in the absence of S. P. SHARPLES.

SECRETARIES OF THE SECTIONS, 1882–

Section A.—Mathematics and Astronomy.

31. H. T. EDDY, 1882.
32. G. W. HOUGH, 1883, in the absence of W. W. JOHNSON.
33. G. W. HOUGH, 1884.
34. E. W. HYDE, 1885.
35. S. C. CHANDLER, 1886.
36. H. M. PAUL, 1887.
37. C. C. DOOLITTLE, 1888.
38. G. C. COMSTOCK, 1889.
39. W. W. BEMAN, 1890.
40. F. H. BIGELOW, 1891.
41. WINSLOW UPTON, 1892.
42. C. A. WALDO, 1893, in the absence of A. W. PHILLIPS.
43. J. C. KERSHNER, 1894, in place of W.W.BEMAN, res'd.
44. ASAPH HALL, JR., 1895, in place of E. H. MOORE, res'd.
45. EDWIN B. FROST, 1896.
46. JAMES MCMAHON, 1897.
47. WINSLOW UPTON, 1898, in place of ALEX. ZIWET, resigned.
48. JOHN F. HAYFORD, 1899.
49. W. M. STRONG, 1900.

50. G. A. MILLER, 1901, in place of H. C. LORD, resigned.
51. E. S. CRAWLEY, 1902.
52. C. S. HOWE, 1903.
53–57. L. G. WELD, 1904–1907.
58. GEORGE A. MILLER, 1908.

Section B.—Physics.

31. C. S. HASTINGS, 1882.
32. F. E. NIPHER, 1883, in the absence of C. K. WEAD.
33. N. D. C. HODGES, 1884.
34. B. F. THOMAS, 1885, in place of A. A. MICHELSON, resigned.
35. H. S. CARHART, 1886.
36. C. LEO MEES, 1887.
37. ALEX. MACFARLANE, 1888.
38. E. L. NICHOLS, 1889.
39. E. M. AVERY, 1890.
40. ALEX. MACFARLANE, 1891.
41. BROWN AYRES, 1892.
42. W. LECONTE STEVENS, 1893.
43. B. W. SNOW, 1894.
44. E. MERRITT, 1895.
45. FRANK P. WHITMAN, 1896.
46. FREDERICK BEDELL, 1897.
47. W. S. FRANKLIN, 1898, in place of E. B. ROSA, resigned.
48. WILLIAM HALLOCK, 1899.
49. R. A. FESSENDEN, 1900.
50. JOHN ZELENY, 1901, in place of J. O. REED, resigned.
51. E. F. NICHOLS, 1902.
52. D. C. MILLER, 1903.
53–57. D. C. MILLER, 1904–1907.
58. A. D. COLE, 1908.

Section C.—Chemistry.

31. ALFRED SPRINGER, 1882.
32. { J. W. LANGLEY, 1883. / W. MCMURTRIE, 1883.
33. H. CARMICHAEL, 1884, in the absence of R. B. WARDER.
34. F. P. DUNNINGTON, 1885.
35. W. MCMURTRIE, 1886.
36. C. F. MABERY, 1887.
37. W. L. DUDLEY, 1888.
38. EDWARD HART, 1889.
39. W. A. NOYES, 1890.
40. T. H. NORTON, 1891.
41. JAS. LEWIS HOWE, 1892.
42. H. N. STOKES, 1893, in the absence of J. U. NEF.
43. MORRIS LOEB, 1894, in place of S. M. BABCOCK, resigned.
44. { W. P. MASON, 1895. / W. O. ATWATER, 1895.
45. FRANK P. VENABLE, 1896.
46. P. C. FREER, 1897.
47. C. BASKERVILLE, 1898.
48. H. A. WEBER, 1899.
49. A. A. NOYES, 1900.
50. W. MCPHERSON, 1901.
51. F. C. PHILLIPS, 1902.
52. H. N. STOKES, 1903.
53–58. CHAS. L. PARSONS, 1904–1908.

Section D.—Mechanical Science and Engineering.

31. J. BURKITT WEBB, 1882, in the absence of C. B. DUDLEY.
32. J. BURKITT WEBB, 1883, *pro tempore.*
33. J. BURKITT WEBB, 1884.
34. C. J. H. WOODBURY, 1885.
35. WILLIAM KENT, 1886.
36. G. M. BOND, 1887.
37. ARTHUR BEARDSLEY, 1888.
38. W. B. WARNER, 1889.
39. THOMAS GRAY, 1890.
40. WILLIAM KENT, 1891.
41. O. H. LANDRETH, 1892.
42. D. S. JACOBUS, 1893.

SECRETARIES OF THE SECTIONS, CONTINUED.

43. JOHN H. KINEALY, 1894.
44. H. S. JACOBY, 1895.
45. JOHN GALBRAITH, 1896.
46. JOHN J. FLATHER, 1897.
47. JOHN J. FLATHER, 1898, in the absence of W. S. ALDRICH.
48. J. M. PORTER, 1899.
49. W. T. MAGRUDER, 1900.
50. C. W. COMSTOCK, 1901, in the absence of W. H. JAQUES.
51. C. A. WALDO, 1902.
52. ELWOOD MEAD, 1903, in the absence of ALBERT KINGSBURY.
53–58. W. T. MAGRUDER, 1904–1908.

Section E.—Geology and Geography.

31. H. S. WILLIAMS, 1882, in the absence of C. E. DUTTON.
32. A. A. JULIEN, 1883.
33. E. A. SMITH, 1884.
34. G. K. GILBERT, 1885, in the absence of H. C. LEWIS.*
35. E. W. CLAYPOLE,* 1886.
36. W. M. DAVIS, 1887, in the absence of T. B. COMSTOCK.
37. JOHN C. BRANNER, 1888.
38. JOHN C. BRANNER, 1889.
39. SAMUEL CALVIN, 1890.
40. W J MCGEE, 1891.
41. R. D. SALISBURY, 1892.
42. W. H. HOBBS,* 1893, in place of R. T. HILL, resigned.
43. JED. HOTCHKISS,* 1894, in place of W. M. DAVIS, res'd.
44. J. PERRIN SMITH, 1895.
45. W. N. RICE, 1896, in place of A. C. GILL, resigned.
46. C. H. SMITH, JR., 1897.
47. WARREN UPHAM, 1898.
48. ARTHUR HOLLICK, 1899.
49. J. A. HOLMES, 1900.
50. H. B. PATTON, 1901, in the absence of R. A. F. PENROSE.
51. F. P. GULLIVER, 1902.
52. E. O. HOVEY, 1903.
53. E. O. HOVEY, 1904, in absence of G. B. SHATTUCK, 1904.
54–57. EDMUND O. HOVEY, 1905–1907.
58. F. P. GULLIVER, 1908.

Section F.—Biology, 1882–1892.

31. WILLIAM OSLER, 1882, in the absence of C. S. MINOT.
32. S. A. FORBES, 1883.
33. C. E. BESSEY, 1884.
34. J. A. LINTNER,* 1885, in place of C. H. FERNALD, res'd.
35. J. C. ARTHUR, 1886.
36. J. H. COMSTOCK, 1887.
37. B. E. FERNOW, 1888.
38. A. W. BUTLER, 1889.
39. J. M. COULTER, 1890.
40. A. J. COOK, 1891.
41. D. B. HALSTEAD, 1892.

Section F.—Zoology.

42. L. O. HOWARD, 1893.
43. JOHN B. SMITH, 1894, in place of WM. LIBBY, JR., resigned
44. C. W. HARGITT, 1895, in place of S. A. FORBES, res'd.
45. D. S. KELLICOTT,* 1896.
46. C. C. NUTTING, 1897.
47. R. T. JACKSON, 1898, in place of C. W. STILES, resigned.
48. C. L. MARLATT, 1899, in place of F. W. TRUE, resigned.

SECRETARIES OF THE SECTIONS, CONTINUED.

49. C. H. EIGENMANN, 1900.
50. H. B. WARD, 1901.
51. C. W. STILES, 1902.
52. C. J. HERRICK, 1903.
53–58. C. J. HERRICK, 1904–08.

Section G.—Microscopy, 1882–85.

31. ROBERT BROWN, JR., 1882.
32. CARL SEILER, 1883.
33. ROMYN HITCHCOCK, 1884.
34. W. H. WALMSLEY, 1885.

Section G.—Botany.

42. B. T. GALLOWAY, 1893, in the absence of F. V. COVILLE.
43. CHAS. R. BARNES, 1894.
44. { B. T. GALLOWAY, 1895. M. B. WAITE, 1895.
45. GEORGE F. ATKINSON, 1896.
46. F. C. NEWCOMBE, 1897.
47. ERWIN F. SMITH, 1898.
48. W. A. KELLERMAN, 1899.
49. D. T. MACDOUGAL, 1900.
50. ERNST A. BESSEY, 1901, in the absence of A. S. HITCHCOCK.
51. H. VON SCHRENK, 1902.
52. C. J. CHAMBERLAIN, 1903.
53–55. F. E. LLOYD, 1904–1906.
56. G. F. ATKINSON, 1906, in the absence of F. E. LLOYD.
57. TRACY E. HAZEN, 1907, in the absence of T. E. LLOYD.
58. HENRY C. COWLES, 1908, in absence of F. E. LLOYD.

Section H.—Anthropology and Psychology.

31. OTIS T. MASON, 1882.
32. G. H. PERKINS, 1883.
33. G. H. PERKINS, 1884, in the absence of W. H. HOLMES.
34. ERMINNIE A. SMITH,* 1885.
35. A. W. BUTLER, 1886.
36. CHAS. C. ABBOTT, 1887, in the absence of F. W. LANGDON.
37. FRANK BAKER, 1888.
38. W. M. BEAUCHAMP, 1889.
39. JOSEPH JASTROW, 1890.
40. W. H. HOLMES, 1891.
41. W. M. BEAUCHAMP, 1892, in place of S. CULIN, resigned.
42. W. K. MOOREHEAD, 1893.
43. A. F. CHAMBERLIN, 1894.
44. { STEWART CULIN and W. W. TOOKER, 1895, in place of ANITA N. MCGEE, res'd.
45. G. H. PERKINS, 1896, in place of J. G. BOURKE,* dec'd.
46. ANITA N. MCGEE, 1897, in place of HARLAN I. SMITH, res'd.
47. MARSHALL H. SAVILLE, 1898.
48. E. W. SCRIPTURE, 1899, in place of GEO. A. DORSEY, resigned.
49. FRANK RUSSELL,* 1900.
50. G. G. MACCURDY, 1901.
51. HARLAN I. SMITH, 1902.
52. R. B. DIXON, 1903.
53–58. GEO. H. PEPPER, 04–08.

Section I.—Social and Economic Science.

31. { FRANKLIN B. HOUGH,* 1882. J. RICHARDS DODGE, 1882.
32. JOSEPH CUMMINGS,* 1883.
33. CHARLES W. SMILEY, 1884.
34. CHAS. W. SMILEY, 1885, in the absence of J. W. CHICKERING.
35. H. E. ALVORD,* 1886.
36. W. R. LAZENBY, 1887.

SECRETARIES OF THE SECTIONS, CONTINUED.

37. CHARLES S. HILL, 1888.
38. J. RICHARDS DODGE, 1889.
39. B. E. FERNOW, 1890.
40. B. E. FERNOW, 1891.
41. HENRY FARQUHAR, 1892, in place of L. F. WARD, made Vice-President.
42. NELLIE S. KEDZIE, 1893.
43. MANLEY MILES, 1894.
44. W. R. LAZENBY, 1895, in place of E. A. ROSS, resigned.
45. R. T. COLBURN, 1896.
46. ARCHIBALD BLUE, 1897.
47. MARCUS BENJAMIN, 1898.
48. CALVIN M. WOODWARD, 1899.
49. H. T. NEWCOMB, 1900.
50. R. A. PEARSON, 1901, in place of CORA A. BENNESON, res'd.
51. F. R. RUTTER, 1902, in place of WALTER F. WILLCOX, resigned.
52. F. H. HITCHCOCK, 1903.
53–57. J. F. CROWELL, 1904–07.
58. J. PEASE NORTON, 1908.

Section K.—Physiology and Experimental Medicine.

51. F. S. LEE, 1902.
52. F. S. LEE, 1903.
53. F. S. LEE, 1904.
54–58 W. J. GIES, 1905–08.

Section L.—Education.

58. E. L. THORNDIKE, 1908, pro tem.

TREASURERS.

1. JEFFRIES WYMAN,* 1848.
2. A. L. ELWYN,* 1849.
3. ST. J. RAVENEL,* 1850, in the absence of A. L. ELWYN.*
4. A. L. ELWYN,* 1850.
5. SPENCER F. BAIRD,* 1851, in the absence of A. L. ELWYN.*
6–7. A. L. ELWYN,* 1851–53.
8. J. L. LECONTE,* 1854, in the absence of A. L. ELWYN.*
9–19. A. L. ELWYN,* 1855–1870.
20–30. WM. S. VAUX,* 1871–1881.
32–42. WM. LILLY,* 1882–93.
43–49. R. S. WOODWARD, 1894–1900.
50–54. R. S. WOODWARD, 1901–1905.
55–60. R. S. WOODWARD, 1906–1910.

Commonwealth of Massachusetts.

In the Year One Thousand Eight Hundred and Seventy-four.

AN ACT

TO INCORPORATE THE "AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE."

Be it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows:

SECTION 1. Joseph Henry of Washington, Benjamin Pierce of Cambridge, James D. Dana of New Haven, James Hall of Albany, Alexis Caswell of Providence, Stephen Alexander of Princeton, Isaac Lea of Philadelphia, F. A. P. Barnard of New York, John S. Newberry of Cleveland, B. A. Gould of Cambridge, T. Sterry Hunt of Boston, Asa Gray of Cambridge, J. Lawrence Smith of Louisville, Joseph Lovering of Cambridge, and John LeConte of Philadelphia, their associates, the officers and members of the Association, known as the "American Association for the Advancement of Science," and their successors, are hereby made a corporation by the name of the "American Association for the Advancement of Science," for the purpose of receiving, purchasing, holding, and conveying real and personal property, which it now is, or hereafter may be, possessed of, with all the powers and privileges, and subject to the restrictions, duties and liabilities set forth in the general laws which now or hereafter may be in force and applicable to such corporations.

SECTION 2. Said corporation may have and hold by purchase, grant, gift, or otherwise, real estate not exceeding one hundred thousand dollars in value, and personal estate of the value of two hundred and fifty thousand dollars.

SECTION 3. Any two of the corporators above named are hereby authorized to call the first meeting of the said corporation in the month of August next ensuing, by notice thereof "by mail," to each member of the said Association.

SECTION 4. This act shall take effect upon its passage.

HOUSE OF REPRESENTATIVES, March 10, 1874.
Passed to be enacted,
JOHN E. SANFORD, *Speaker.*

IN SENATE, March 17, 1874.
Passed to be enacted,
GEO. B. LORING, *President.*

March 19, 1874.
Approved.
W. B. WASHBURN.

SECRETARY'S DEPARTMENT,
Boston, April 3, 1874.
A true copy, Attest:
DAVID PULSIFER,
Deputy Secretary of the Commonwealth.

CONSTITUTION

OF THE

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Incorporated by Act of the General Court of the Commonwealth of Massachusetts.

OBJECTS.

ARTICLE 1. The objects of the Association are, by periodical and migratory meetings, to promote intercourse between those who are cultivating science in different parts of America, to give a stronger and more general impulse and more systematic direction to scientific research, and to procure for the labors of scientific men increased facilities and a wider usefulness.

MEMBERSHIP.

ART. 2. The Association shall consist of members, fellows, patrons, corresponding members and honorary fellows.

MEMBERS.

ART. 3. Any person may become a member of the Association upon recommendation in writing by two members or fellows, and election by the Council. Any incorporated scientific society or institution, or any public or incorporated library, may be enrolled as a member of the Association by vote of the Council by payment of the initiation fee; such society, institution, or library may be represented by either the President, Curator, Director, or Librarian presenting proper credentials at any meeting of the Association for which the assessment has been paid.

ASSOCIATES.

Associates for any single meeting shall be admitted on the payment of three dollars, such associates to have all the privileges of the meeting, except reading papers and voting.

Members of scientific societies whose meetings are contemporaneous with, or immediately subsequent to, that of the Associa-

tion, and which are recognized by vote of the Council as "Affiliated Societies," may become associate members for that meeting on the payment of three dollars. They shall be entitled to all the privileges of membership except voting or appointment to office, but their names shall not appear in the list of members printed in the annual report.

Foreign Associates.

Any member or fellow of any national scientific or educational institution, or of any society or academy of science, of any country not in America, who may be present at any meeting of the Association shall, on presenting the proper credentials, be enrolled without fee as a Foreign Associate, and shall be entitled to all the privileges of the meeting except voting on matters of business.

Fellows.

Art. 4. Fellows shall be elected by the Council from such of the members as are professionally engaged in science, or have, by their labors, aided in advancing science. The election of fellows shall be by ballot, and a majority vote of the members of the Council at a designated meeting of the Council.

Patrons.

Art. 5. Any person paying to the Association the sum of one thousand dollars shall be classed as a patron, and shall be entitled to all the privileges of a member and to all its publications.

Honorary Fellows and Corresponding Members.

Art. 6. Honorary fellows of the Association, not exceeding three for each Section, may be elected, the nominations to be made by the Council and approved by ballot in the respective sections before election by ballot in General Session. Honorary fellows shall be entitled to all the privileges of fellows, and shall be exempt from all fees and assessments, and entitled to all publications of the Association issued after the date of their election. Corresponding members shall consist of such scientists not residing in America as may be elected by the Council, and their number shall be limited to fifty. Corresponding members shall be entitled to

all the privileges of members and to the annual volumes of Proceedings published subsequent to their election.

SUSPENSIONS.

ART. 7. The name of any member or fellow two years in arrears for annual dues shall be erased from the list of the Association, provided, that two notices of indebtedness, at an interval of at least three months, shall have been given; and no such person shall be restored until he has paid his arrearages or has been re-elected. The Council shall have power to exclude from the Association any member or fellow, on satisfactory evidence that said member or fellow is an improper person to be connected with the Association, or has in the estimation of the Council made improper use of his membership or fellowship.

OFFICERS.

ART. 8. No member or fellow shall take part in the organization of, or hold office in, more than one section at any one meeting.

ART. 9. The officers of the Association shall be elected by ballot by the General Committee from the fellows, and shall consist of a President, a Vice-President from each section, a Permanent Secretary, a General Secretary, a Secretary of the Council, a Treasurer, and a Secretary of each Section; these, with the exception of the Permanent Secretary, the Treasurer, and the Secretaries of the Sections, shall be elected at each meeting for the following one, and, with the exception of the Treasurer and the Permanent Secretary, shall not be re-eligible for the next two meetings. The term of office of the Permanent Secretary, of the Treasurer, and of the Secretaries of the Sections, shall be five years.

PRESIDENT.

ART. 10. The President, or, in his absence, the senior Vice-President present, shall preside at all General Sessions of the Association and at all meetings of the Council. It shall also be the duty of the President to give an address at a General Session of the Association at the meeting following that over which he presided.

Vice-Presidents.

Art. 11. The Vice-Presidents shall be chairmen of their respective Sections, and of their Sectional Committees, and it shall be part of their duty to give an address, each before his own Section, at such time as the Council shall determine at the meeting subsequent to that at which he presides. The Vice-Presidents may appoint temporary chairmen to preside over the sessions of their sections, but shall not delegate their other duties. The Vice-Presidents shall have seniority in order of their continuous membership in the Association.

General Secretary.

Art. 12. The General Secretary shall be the Secretary of all General Sessions of the Association, and shall keep a record of the business of these sessions. He shall receive the records from the Secretaries of the Sections, which, after examination, he shall transmit with his own records to the Permanent Secretary within two weeks after the adjournment of the meeting.

Secretary of the Council.

Art. 13. The Secretary of the Council shall keep the records of the Council. He shall give to the Secretary of each Section the titles of papers assigned to it by the Council. He shall receive proposals for membership and bring them before the Council.

Permanent Secretary.

Art. 14. The Permanent Secretary shall be the executive officer of the Association under the direction of the Council. He shall attend to all business not specially referred to committees nor otherwise constitutionally provided for. He shall keep an account of all business that he has transacted for the Association, and make annually a general report for publication in the annual volume of Proceedings. He shall attend to the printing and distribution of the annual volume of Proceedings, and all other printing ordered by the Association. He shall issue a circular of information to members and fellows at least three months before each meeting, and shall, in connection with the Local Committee, make all necessary arrangements for the meetings of the

Association. He shall provide the Secretaries of the Association with such books and stationery as may be required for their records and business, and shall provide members and fellows with such blank forms as may be required for facilitating the business of the Association. He shall collect all assessments and admission fees, and notify members and fellows of their election, and of any arrearages. He shall receive, and bring before the Council, the titles and abstracts of papers proposed to be read before the Association. He shall keep an account of all receipts and expenditures of the Association, and report the same annually at the first meeting of the Council, and shall pay over to the Treasurer such unexpended funds as the Council may direct. He shall receive and hold in trust for the Association all books, pamphlets, and manuscripts belonging to the Association, and allow the use of the same under the provisions of the Constitution and the orders of the Council. He shall receive all communications addressed to the Association during the intervals between meetings, and properly attend to the same. He shall at each meeting report the names of fellows and members who have died since the preceding meeting. He shall be allowed a salary which shall be determined by the Council, and may employ one or more clerks at such compensation as may be agreed upon by the Council.

Treasurer.

Art. 15. The Treasurer shall invest the funds received by him in such securities as may be directed by the Council. He shall annually present to the Council an account of the funds in his charge. No expenditure of the principal in the hands of the Treasurer shall be made without a unanimous vote of the Council, and no expenditure of the income received by the Treasurer shall be made without a two-thirds vote of the Council. The Treasurer shall give bonds for the faithful performance of his duty in such manner and sum as the Council shall from time to time direct.

Secretaries of the Sections.

Art. 16. The Secretaries of the Sections shall keep the records of their respective Sections, and, at the close of the meeting, give

the same, including the records of subsections, to the General Secretary. They shall also be the Secretaries of the sectional committees. The Secretaries shall have seniority in order of their continuous membership in the Association.

VACANCIES.

ART. 17. In case of a vacancy in the office of President, the senior Vice-President shall preside, as provided in Article 10, until the General Committee can be assembled and the vacancy filled by election. Vacancies in the offices of Vice-President, Permanent Secretary, Secretary of the Council, Secretaries of the Sections, and Treasurer, shall be filled by the Council by ballot.

COUNCIL.

ART. 18. The Council shall consist of the Past Presidents, and the Vice-Presidents of the last two meetings, together with the President, the Vice-Presidents, the Permanent Secretary, the General Secretary, the Secretary of the Council, the Secretaries of the Sections, and the Treasurer of the current meeting, of one fellow elected from each Section by ballot on the first day of its meeting, of one fellow elected by each affiliated society, and one additional fellow from each affiliated society having more than twenty-five members who are fellows of the Association, and of nine fellows elected by the Council, three being annually elected for a term of three years. The members present at any regularly called meeting of the Council, provided there are at least five, shall form a quorum for the transaction of business. The Council shall meet on the day preceding each annual meeting of the Association, and arrange the program for the first day of the sessions. The time and place of this first meeting shall be designated by the Permanent Secretary. Unless otherwise agreed upon, regular meetings of the Council shall be held in the Council room at 9 o'clock A. M., on each day of the meeting of the Association. Special meetings of the Council may be called at any time by the President. The Council shall be the board of supervision of the Association, and no business shall be transacted by the Association that has not first been referred to, or originated with, the Council. The Council shall decide

which papers, discussions, and other proceedings shall be published, and have the general direction of the publications of the Association; manage the financial affairs of the Association; arrange the business and programs for General Sessions; suggest subjects for discussion, investigation or reports; elect members and fellows; and receive and act upon all invitations extended to the Association and report the same at a General Session of the Association. The Council shall receive all reports of Special Committees and decide upon them, and only such shall be read in General Session as the Council shall direct. The Council shall appoint at each meeting the following subcommittees who shall act, subject to appeal to the whole Council, until their successors are appointed at the following meeting: 1, on Papers and Reports; 2, on Members; 3, on Fellows.

General Committee.

Art. 19. The General Committee shall consist of the Council and one member or fellow elected by each of the Sections, who shall serve until their successors are elected. It shall be the duty of the committee to meet at the call of the President and elect the general officers for the following meeting of the Association. It shall also be the duty of this committee to fix the time and place for the next meeting. The Vice-President and Secretary of each Section shall be recommended to the General Committee by the Sectional Committee.

Meetings.

Art. 20. The Association shall hold a public meeting annually for one week or longer, at such time and place as may be determined by vote of the General Committee, and the preliminary arrangements for each meeting shall be made by the Local Committee, in conjunction with the Permanent Secretary and such other persons as the Council may designate.

But if suitable preliminary arrangements cannot be made, the Council may afterward change the time and place appointed by the General Committee, if such change is believed advisable by two-thirds of the members present.

ART. 21. A General Session shall be held at 10 o'clock, A. M., on the first day of the meeting, and at such other times as the Council may direct.

SECTIONS AND SUBSECTIONS.

ART. 22. The Association shall be divided into Sections, namely:—A, *Mathematics and Astronomy;* B, *Physics;* C, *Chemistry; including its application to Agriculture and the Arts;* D, *Mechanical Science and Engineering;* E, *Geology and Geography;* F, *Zoology;* G, *Botany;* H, *Anthropology and Psychology;* I, *Social and Economic Science;* K, *Physiology and Experimental Medicine;* L, *Education.* The Council shall have power to consolidate any two or more Sections temporarily, and such consolidated Sections shall be presided over by the senior Vice-President and Secretary of the Sections comprising it.

SECTIONAL COMMITTEES.

ART. 23. Immediately on the organization of a Section there shall be a member or fellow elected by ballot after open nomination, who, with the Vice-President and Secretary and the Vice-President and Secretary of the preceding meeting, and the members or fellows elected by ballot at the four preceding meetings, shall form its Sectional Committee. The Sectional Committee shall have power to fill vacancies in their own numbers. Meetings of the Sections shall not be held at the same time with a General Session. The Sectional Committee may invite distinguished foreign associates present at any meeting to serve as honorary members of said Committee.

ART. 24. The Sectional Committee of any Section may at its pleasure form one or more temporary Subsections, and may designate the officers thereof. The Secretary of a Subsection shall, at the close of the meeting, transmit his records to the Secretary of the section.

ART. 25. No paper shall be read in any Section or Subsections until it has been placed on the program of the day by the Sectional Committee.

ART. 26. The Sectional Committees shall arrange and direct the business of their respective Sections. They shall prepare the

daily programs and give them to the Permanent Secretary for printing at the earliest moment practicable. No titles of papers shall be entered on the daily programs except such as have passed the Committee. No change shall be made in the program for the day in a Section without the consent of the Sectional Committee. The Sectional Committees may refuse to place the title of any paper on the program; but every such title, with the abstract of the paper or the paper itself, must be referred to the Council with the reasons why it was refused. The Sectional Committee shall also make nominations to the General Committee for Vice-President and Secretary of their respective Sections as provided for in Article 19.

ART. 27. The Sectional Committees shall examine all papers and abstracts referred to the Sections, and they shall not place on the program any paper inconsistent with the character of the Association; and to this end they have power to call for any paper, the character of which may not be sufficiently understood from the abstract submitted.

PAPERS AND COMMUNICATIONS.

ART. 28. All members and fellows must forward to the Secretary of the proper Section or to the Permanent Secretary, as early as possible, and when practicable before the convening of the Association, full titles of all the papers which they propose to present during the meeting, with a statement of the time that each will occupy in delivery, and also such abstracts of their contents as will give a general idea of their nature; and no title shall be considered by a Sectional Committee until an abstract of the paper or the paper itself has been received.

ART. 29. If the author of any paper be not ready when called upon, in the regular order of the official program, the title may be dropped to the bottom of the list.

ART. 30. Whenever practicable the proceedings and discussions at General Sessions, Sections and Subsections, shall be reported by professional reporters, but such reports shall not appear in print as the official reports of the Association unless revised by the Secretaries.

PRINTED PROCEEDINGS.

ART. 31. The Permanent Secretary shall have the Proceedings of each meeting printed in an octavo volume as soon after the

meeting as possible, beginning one month after adjournment. Authors must prepare their papers or abstracts ready for the press, and these must be in the hands of the Secretaries of the Sections before the final adjournment of the meeting, otherwise only the titles will appear in the printed volume. The Council shall have power to order the printing of any paper by abstract or title only. Whenever practicable, proofs shall be forwarded to authors for revision. If any additions or substantial alterations are made by the author of a paper after its submission to the Secretary, the same shall be distinctly indicated. Illustrations must be provided for by the authors of the papers, or by a special appropriation from the Council. Immediately on publication of the volume, a copy shall be forwarded to every member and fellow of the Association who shall have paid the assessment for the meeting to which it relates, and it shall also be offered for sale by the Permanent Secretary at such price as may be determined by the Council. The Council shall also designate the institutions to which copies shall be distributed.

Local Committee.

Art. 32. The Local Committee shall consist of persons interested in the objects of the Association and residing at or near the place of the proposed meeting. It is expected that the Local Committee, assisted by the officers of the Association, will make all essential arrangements for the meeting, and issue a circular giving necessary particulars, at least one month before the meeting.

Library of the Association.

Art. 33. All books and pamphlets received by the Association shall be in charge of the Permanent Secretary, who shall have a list of the same printed and shall furnish a copy to any member or fellow on application. Members and fellows who have paid their assessments in full shall be allowed to call for books and pamphlets, which shall be delivered to them at their expense on their giving a receipt agreeing to make good any loss or damage, and to return the same free of expense to the Permanent Secretary at the time specified in the receipt given. All books and pamphlets in circulation must be returned at each meeting. Not more than five books, including volumes, parts of volumes, and pamphlets

shall be held at one time by any member or fellow. Any book may be withheld from circulation by order of the Council. [The Library of the Association was, by vote of the Council in 1895, placed on deposit in the Library of the University of Cincinnati Ohio. Members can obtain the use of books by writing to the Librarian of the University Library, Cincinnati, Ohio.]

Admission Fee and Assessments.

Art. 34. The admission fee for members shall be five dollars in addition to the annual dues.

Art. 35. The annual dues for members and fellows shall be three dollars.

Art. 36. Any member or fellow who shall pay the sum of fifty dollars to the Association, at any one time, shall become a Life Member, and as such shall be exempt from all further assessments, and shall be entitled to the Proceedings of the Association. All money thus received shall be invested as a permanent fund, the income of which, during the life of the member, shall form a part of the general fund of the Association, but, after his death, shall be used only to assist in original research, unless otherwise directed by unanimous vote of the Council. (New members becoming life members must pay the admission fee of five dollars.)

Art. 37. All fees and dues must be paid to the Permanent Secretary who shall give proper receipts for the same.

Accounts.

Art. 38. The accounts of the Permanent Secretary and of the Treasurer shall be audited annually by Auditors appointed by the Council.

Alterations of the Constitution.

Art. 39. No part of this Constitution shall be amended or annulled, without the concurrence of three-fourths of the members and fellows present in General Session, after notice given at a General Session of a preceding meeting of the Association.

MEMBERS AND FELLOWS

OF THE

AMERICAN ASSOCIATION

FOR THE

ADVANCEMENT OF SCIENCE.

SURVIVING FOUNDERS.

[At the Brooklyn Meeting, 1894, a resolution was unanimously adopted by which all the surviving founders of the Association who have maintained an interest in science were made Honorary Life Members of the Association in recognition of their pioneer work in American Science.]

BOYÉ, MARTIN H., Coopersburg, Pa.
GIBBS, WOLCOTT, Newport, R. I.

PATRONS.

[Persons contributing one thousand dollars or more to the Association are classed as Patrons, and are entitled to the privileges of members and to the publications. The names of Patrons are to remain permanently on the list.]

THOMPSON, MRS ELIZABETH, Stamford, Conn. (22). (Died July, 1899.)
LILLY, GEN. WILLIAM, Mauch Chunk, Pa. (28). (Died Dec. 1, 1893.)
HERRMAN, MRS. ESTHER, 59 West 56th St., New York, N. Y. (29).
MCMILLIN, EMERSON, 40 Wall St., New York, N. Y. (37).

HONORARY FELLOWS.

[See ARTICLE VI of the Constitution.]

*GIBBS, PROF. WOLCOTT, Newport, R. I. (1). 1896. B C
*WESTINGHOUSE, GEORGE, Pittsburg, Pa. (50). 1902. D

MEMBERS AND FELLOWS.

The names designated by an asterisk (*) are those of Fellows. (See ARTICLE IV of the Constitution.) The number in parenthesis indicates the meeting at which the Member joined the Association; the date following is the year when made a Fellow; the black letters at end of line are those of the Sections to which the Member or Fellow belongs. When the name is given in small capitals, it designates that the Member or Fellow is also a Life Member. Any Member or Fellow may become a Life Member by the payment of fifty dollars. (New members becoming life members must pay the admission fee of five dollars.) The income of the money derived from a life membership is used for the general purposes of the Association during the life of the Member; afterwards it is to be used to aid in original research. Life Members are exempt from the annual assessment, and are entitled to the publications. The names of Life Members are printed in small capitals in the regular list of Members and Fellows.

The Constitution requires that the names of all Members two years in arrears shall be omitted from the list, but their names will be restored on payment of arrearages. Members not in arrears are entitled to the publications of the Association, including the journal *Science*.

*Abbe, Cleveland, Professor of Meteorology, Weather Bureau, U. S. Dept. Agriculture, Washington, D. C. (16). 1874. A B

*Abbe, Cleveland, Jr., U. S. Weather Bureau, San Francisco, Cal. (44). 1899. E

*Abbe, Dr. Robert, 13 W. 50th St., New York, N. Y. (36). 1892.

*Abbot, Charles G., Smithsonian Institution, Washington, D. C. (49). 1902. B

Abbot, E. Stanley, M. D., First Assistant Physician, McLean Hospital, Waverley, Mass. (54). K

*Abbott, Alexander C., Univ. of Penna., Philadelphia, Pa. (52). 1905. K

Abbott, Frank L., Professor of Physical Sciences, State Normal School, Greeley, Colo. (50). B E

Abbott, James Francis, Ph. D., Asst. Prof. of Zoology, Dept. Biology, Washington University, St. Louis, Mo. (58). F

Abbott, Theodore Sperry, C. E., Saltillo, Coahuila, Mexico. (52). D

*Abel, John J., Professor of Pharmacology, Johns Hopkins University, Baltimore, Md. (51). 1902. C K

Abraham, Abraham, care of Abraham & Straus, Brooklyn, N. Y. (43). I

Abrams, LeRoy, Asst. Prof. Botany, Stanford University, Cal. (54). G

Abt, Dr. Joseph L., 733 So. Halsted St., Chicago, Ill. (58). K

*Acheson, Edward Goodrich, President of the International Acheson Graphite Co., Niagara Falls, N. Y. (50). 1903. C

*Adams, Charles C., Zoology Bldg., Univ. of Chicago, Chicago, Ill. (50). 1903. F

Adams, C. F., Entomologist, Agricultural Experiment Station, University of Arkansas, Fayetteville, Ark. (54). F

*Adams, Charles Francis, Head of Science Department, Central High School, Detroit, Mich. (53). 1906. B

Adams, Comfort A., Prof. Electrical Engineering, Harvard Univ., Cambridge, Mass. (47). B

*Adams, Cyrus C., 1043 Southern Boulevard, New York, N. Y. (54). 1906. **E**

Adams, Edward Dean, Empire Bldg., 71 Broadway, New York, N. Y. (49).

Adams, Frederick C., Mechanic Arts High School, Boston, Mass. (50). **B C L**

Adams, George E., 184 LaSalle St., Chicago, Ill. (58).

Adams, John W., Prof. of Physics, McKinley Manual Training School, Washington, D. C. (54). **B G**

Adams, Mary W., 477 Prospect St., New Haven, Conn. (57). **E**

Adams, Matthew Prior, Instructor in Physics and Chemistry, State Normal School, Box 555, New Britain, Conn. (54). **B C**

Adams, Maxwell, Prof. Chemistry, Nevada State University, Reno, Nevada. (57). **C**

Aderhold, T. M., Zeigler, Ill. (58).

*Adler, Cyrus, Smithsonian Institution, Washington, D. C. (54). 1906. **H**

*Adler, Felix, M. D., 123 E. 60th St., New York, N. Y. (54). 1906. **K**

*Adler, Isaac, M. D., 22 E. 62d St., New York, N. Y. (49). 1903. **K**

Adler, Leon N., Ph. D., Manufacturing Chemist, 100 William St., New York, N. Y. (56). **C**

*Adriance, John S., 105 E. 39th St., New York, N. Y. (39). 1895. **C**

Agnew, Paul G., Bureau of Standards, Washington, D. C. (54). **B**

*Aguilera, José G., Director of the Geological Institute of Mexico, 6*a* Cipres, No. 2728, Mexico City, D. F. Mexico. (53). 1905. **E**

Ahern, M. J., S. J., Universitatstrasse 8, Innsbruck, Tyrol, Austria. (57). **E**

Aikin, Joseph M., M. D., Professor of Mental Diseases, Univ. of Nebraska College of Medicine, Omaha, Neb. (55). **K**

Aikins, Prof. H. Austin, Western Reserve University, Cleveland, Ohio. (58). **B.**

Ailes, Hon. Milton E., Riggs National Bank, Washington, D. C. (52). **I**

Ainsworth, Herman Reeve, M. D., Addison, N. Y. (51). **I K**

*Aitken, Robert G., Lick Observatory, Mt. Hamilton, Cal. (53). 1906. **A**

Akeley, Lewis E., Professor of Physics and Chemistry, University of South Dakota, Vermillion, S. Dak. (51). **B C**

Albert, Harry Lee, Professor of Biology, State Normal School, Cape Girardeau, Mo. (53). **F G**

Albert, Henry, M. D., Professor of Pathology and Bacteriology, Iowa State Univ. College of Medicine, Iowa City, Iowa. (57). **K**

Albrecht, Emil Poole, Secretary of The Bourse, 1523 N. 17th St., Philadelphia, Pa. (51). **A D**

*Albrecht, Sebastian, Lick Observatory, Mt. Hamilton, Cal. (52). 1906. **A**

Albree, Chester B., Mechanical Engineer and Manufacturer, 1115 Market St., Allegheny, Pa. (50). **D**

*Alden, John, Chemist, Pacific Mills, Lawrence, Mass. (36). 1898. **C**

*Alderson, Victor C., President Colorado School of Mines, Golden, Colorado. (50). 1903. **D**

*Aldrich, Truman Heminway, 1739 P St. N.W., Washington, D. C. (54). 1906. **E**

*Aldrich, Wm. S., Director, Thomas S. Clarkson Memorial School of Technology, Potsdam, N. Y. (43). 1897. **D**

Alexander, Daniel Basil William, 1020 Date St., Los Angelos, Cal. (57). **C**

Alexander, Harry E. E., M. E., 18 and 20 W. 34th St., New York, N. Y. (50). **D**

*Aley, Robert J., Ph. D., Indiana Univ., Bloomington, Ind. (49). 1906. **A**

Allabach, Miss Lula F., Teacher of Botany, 5th Avenue High School, Pittsburg, Pa. (52). **F**

Allderdice, Wm. H., Commander U. S. Navy, Navy Dept., Washington, D. C. (33). **D**

Alleman, Gellert, Ph. D., Swarthmore College, Swarthmore, Pa. (50). **C**

*Allen, Bennet Mills, Instructor in Anatomy, University of Wisconsin, Madison, Wis. (54). 1906. **F K**

*Allen, Charles Elmer, 810 W. Johnson St., Madison, Wis. (55). 1908. **G**

Allen, Charles Metcalf, Assistant Prof. of Experimental Engineering, Worcester Polytechnic Institute, Worcester, Mass. (52). **D**

Allen, David R., Associate Professor of Mathematics, University of Utah, Salt Lake City, Utah. (57). **A**

Allen, Edwin West, Editor of *Experiment Station Record*, U. S. Dept. Agriculture, Washington, D. C. (52). **I**

*Allen, Frank, Ph. D., Professor of Physics, Univ. of Manitoba, Winnipeg, Manitoba, Canada. (49). 1903. **B**

Allen, James Lane, 66 Fifth Ave, New York, N. Y. (57). **I**

Allen, Richard H., Chatham, N. J. (49).

Allen, William Frederick, M. S., 180 Scotland Road, South Orange, N. J. (55).

Aller, Henry D., Supt. and Director U. S. Fisheries Laboratory, Beaufort, N. C. (57). **F**

*Allis, Edward Phelps, Jr., Palais de Carnolès, Mentone, South France. (52). 1905. **F**

*Allison, Andrew, Ellisville. Miss. (54). 1906. F G
*Allison, C. Edward, M. D., Elysburg, Pa. (51). 1906. K
Allison, Samuel B., 6035 Drexel Ave., Chicago, Ill. (58).
Allison, William B., 619 Gravier St., New Orleans, La. (55). G
Almy, Frank Fayette, Professor Physics, Iowa College, Grinnell, Iowa. (57). B
*Almy, John E., Ph. D., Instructor in Physics, University of Nebraska, Lincoln, Neb. (50). 1901. B
Alpers, Martin E., Jr., 94 Randolph Ave., Dover, N. J. (57). K
*Alsberg, Carl Lucas, Dept. Biological Chemistry, Harvard Medical School, Boston, Mass. (55). 1908. C
Alsop, E. B., 1502 20th St., N. W., Washington. D. C. (50). D
Alspach, E. F., 455 West Sixth Ave., Columbus, O. (48). H
Altamirano, Dr. Fernando, Instituto Medico Nacional, Esquina de Balderas y Ayuntamiento num 1202, Mexico, D. F. (53). G
Alvord, John W., Hydraulic and Sanitary Engineer, 1212 Hartford Bldg., Chicago, Ill. (58).
Alwine, John, Jr., Associate Manager Baltimore Chrome Works, 1348 Block St., Baltimore, Md. (54). C
*Alwood, Wm. B., Charlottesville, Va. (39). 1891. F
Amberg, Emil, M. D., 270 Woodward Ave., Detroit, Mich. (58). K
Ames, Edward Scribner, University of Chicago, Chicago, Ill. (58).
*Ames, Oakes, Assistant Director of the Botanic Garden of Harvard University, North Easton, Mass. (50). 1905. G
*Ami, H. M., Geological Survey of Canada, Ottawa, Ontario, Canada. (54) 1906. E
Anders, Howard S., M. D., 1836 Wallace St., Philadelphia, Pa. (51). K
Anderson, A. J. C., 127 Water St., New York, N. Y. (49).
*Anderson, Alexander P., 5463 Washington Ave., Chicago, Ill. (45). 1899. G
Anderson, Douglas S., Professor Electrical Engineering, Tulane Univ., New Orleans, La. (49). B D
*Anderson, Frank, Mining Engineer, 1 Henry Flats, Salt Lake City, Utah. (50). 1906. D E
Anderson, Frank P., Epworth Seminary, Epworth, Iowa. (46).
*Anderson, Dr. John F., Hygienic Lab., Public Health and Marine Hospital Service, Washington, D. C. (58). 1908. K
Anderson, Robt. Van Vleck, U. S. Geological Survey, Washington, D. C. (57). E
*Anderson, William G., M. D., Director Yale University Gymnasium, New Haven, Conn. (52). 1906. H K
Anderson, Winslow, M. D., President of College of Physicians and Surgeons of San Francisco, 1025 Sutter St., San Francisco, Cal. (51). K

Andrews, Champe S., 37 Liberty St., New York, N. Y. (57).
*Andrews, Clement Walker, Librarian of The John Crerar Library, Chicago, Ill. (53). 1908. C
*Andrews, Frank Marion, Ph. D., Asst. Professor Botany, Indiana University, Bloomington, Ind. (52). 1903. G
Andrews, Launcelot W., 3731 Westminster Place, St. Louis, Mo. (58). C
Andrews, Wm. Edward, Principal Township High School, Taylorville, Ill. (52). D
Andrews, William Symes, care Gen'l Elec. Co., Schenectady, N. Y. (50). D E
Angela, Sister Helen, 4928 Evans Ave., Chicago, Ill. (58).
Angell, William R., Esq., 1011 Ashland Block, Chicago, Ill. (58).
Angier, Roswell Parker, Yale University, New Haven, Conn. (57). K
Angle, Dr. Edward H., 1023 North Grand Ave., St. Louis, Mo. (53). F
Anthony, Gardner Chace, Prof. of Technical Drawing and Dean of the Engineering Dept. of Tufts College, Tufts College, Mass. (56). D
*Anthony, Prof. Wm. A., Cooper Union, New York, N. Y. (28). 1880. B
Apple, Joseph H., A. M., President of the Woman's College, Frederick, Md. (52). I
*Appleton, John Howard, Sc. D., Professor of Chemistry, Brown University, Providence, R. I. (50) 1901. C
*Archibald, Raymond Clare, Acadia Univ., Wolfville, N. S. (54). 1906. A
*Argall, Philip, 730 Majestic Building, Denver, Col. (54). 1906. C E
Armfield, Frank, Monroe, N. C. (55). I
Armitage, Thomas L., M. D., Princeton, Minnesota. (51). K
*Armsby, Henry Prentiss, Director Agrl. Expr. Station, State College, Pa. (52). 1903. C
ARMSTRONG, S. T., M. D., 144 East 37th St., New York, N. Y. (57). K
*Arnold, Bion Joseph, 181 La Salle St., Chicago, Ill. (50). 1903. D
Arnold, Ernst Hermann, M. D., Director New Haven Normal School of Gymnastics, 46 York Square, New Haven, Conn. (52). K
Arnold, Harold De Forrest, 5821 Jackson Ave., Chicago, Ill. (57). B
Arnold, James Loring, Asst. Prof. Physics, New York University, Gould Hall, University Heights, New York City. (57). B D
*Arnold, Ralph, U. S. Geological Survey, Washington, D. C. (51). 1906. E

*Arthur, J. C., D. Sc., Botanist Agric. Exper. Sta., Purdue Univ., Lafayette, Ind. (21). 1883. G

Ascham, Louis, 420 W. Willow St., Chippewa Falls, Wis. (54). FG

Asdale, William James, M. D., Professor of Gynecology, Western Penna. Medical College, Pittsburg, Pa. (51). K

Ashbrook, Donald Sinclair, 907 Del. Ave., Wilmington, Del. (51). C

*Ashley, George Hall, U. S. Geol. Survey, Washington, D. C. (51). 1903. EF

Ashley, Jessie, 5 Nassau St., New York, N. Y. (57).

Aspinwall, John, Newburgh, N. Y. (49).

Astor, Col. John Jacob, 23 West 26th St., New York, N. Y. (57). I

Atkins, Martin D., 269 Forest Ave., River Forest, Ill. (48). B

Atkinson, Dr. D. A., 602 Oakwood Ave., West View, Pa. (56).

*Atkinson, George F., Cornell University, Ithaca, N. Y. (39). 1892. G

Atkinson, John B., Earlington, Ky. (26). D

*Atwell, Charles B., Northwestern Univ., Evanston, Ill. (36). 1890. G

Auchincloss, Hugh, M. D., 24 East 48th St., New York, N. Y. (57). K

*Auchincloss, Wm. S., Atlantic Highlands, N. J. (29). 1886. AD

Austin, C. F., Horticulturist, Estacion Central Agronomica, Santiago de las Vegas, Cuba. (54). G

Austin, F. E., Electrical Engineer, 11 South Park St., Hanover, N. H. (57). D

*Austin, Oscar P., Chief of Bureau of Statistics, Dept. of Commerce and Labor, Washington, D. C. (51). 1907. I

*Avery, Elroy M., Ph. D., LL. D., 2831 Woodhill Road, S. E., Cleveland, Ohio. (35). 1899. B

*Avery, Samuel, Director Chemical Laboratories, University of Nebraska, Station A, Lincoln, Neb. (57). 1908. C

Ayer, Edward Everett, 1515 Railway Exchange Bldg., Chicago, Ill. (37). H

Aymar, J., 70 West 54th St., New York, N. Y. (57).

Ayres, George Frederic, Ph. D., St. Charles, Mo. (58).

Ayres, Horace B., Aitkin, Minn. (40).

Babasinian, Vahan S., Instructor in Organic Chem., Lehigh Univ., So. Bethlehem, Pa. (57). C

Babcock, Earie Brownell, 5546 Madison Ave., Chicago, Ill. (58).

Babcock, Ernest Browne, Dept. of Agriculture, Univ. of Cal., Berkeley, Cal. (57). G

*Babcock, Prof. S. Moulton, 432 Lake St., Madison, Wis. (33). 1885. C

Babcock, W. Wayne, M. D., 3302 No. Broad St., Philadelphia, Pa. (54). K

*Baber, Zonia, Associate Prof. Geography, School of Education, University of Chicago, Chicago, Ill. (54). 1906. E

Bacon, Arthur Avery, Professor of Physics, Hobart College, Geneva, N. Y. (53). B

Bacon, Charles Sumner, M. D., 756 Sedgwick Street, Chicago, Ill. (58). K

Bacon, George Preston, Prof. of Physics, Wooster Univ., Wooster, Ohio. (58). B

Baehr, George, 78 West 94th St., New York, N. Y. (57). K

*Baekeland, L. H., Sc. D., Harmony Park, Yonkers-on-Hudson, N. Y. (57). 1908. C

Baerecke, John F., M. D., Professor of Biology, Stetson University, DeLand, Fla. (50). F K

*Bagg, Rufus Mather, Jr., Ph. D., Univ. of Illnois, Urbana, Ill. (49). 1903. E

BAGGALEY, RALPH, Pittsburg, Pa. (50). D

*Bailey, E. H. S., Professor of Chemistry, Univ. of Kansas, Lawrence, Kan. (25). 1889. C E

Bailey, E. P., Sub. Master of Brockton High School, 32 Silver Road, Brockton, Mass. (52). E

Bailey, Frank H., Com'dr, U. S. N., 15 Halsey St., Brooklyn, N. Y. (52). D

*Bailey, Solon Irving, Associate Prof. Astronomy, Harvard College Observatory, Cambridge, Mass. (50). 1901. A

*Bailey, Vernon, Department of Agriculture, Washington, D. C. (52). 1904. F

Bain, H. Foster, Director State Geological Survey, Urbana, Ill. (58). E

*Bain, Samuel M., Professor of Botany, University of Tennessee, Knoxville, Tenn. (50). 1902. G

*Bair, Joseph Hershey, Ph. D., Professor of Psychology, University of Colorado, Boulder, Colo. (52). 1905. H K

*Baird, John Wallace, University of Illinois, Urbana, Ill. (53). 1905. H

*Baird, Lucy H., 341 South 18th St., Philadelphia, Pa. (54). 1906. I

*Baird, Robert Logan, Principal, Denmark Academy, Denmark. Iowa. (53). 1907. F

Baker, A. A., V. S., 2537 State Street, Chicago, Ill. (58).

Baker, A. G., Springfield, Mass. (44).

*Baker, Carl F., Museu Goeldi, Para, Brazil. (54). 1906. G

Baker, E. F., 511 West 122d St., New York, N. Y. (57).

Baker, Edward Hall, B. A., M. D., 5444 Catharine St., Philadelphia, Pa. (58).

*Baker, Frank, M. D., 1728 Columbia Road, Washington, D. C. (31). 1886. F H K

Baker, Frank C., Curator and Asst. Secy., Chicago Academy of Science, Chicago, Ill. (58).

Baker, Henry B., M. D., R. F. D. 12, Holland, Mich. (58). I K

Baker, Hugh P., Pa. State College, State College, Pa. (51). G

*Baker, James H., LL.D., President of the University of Colorado, Boulder, Colo. (50). 1903. I

*Baker, Robt. H., Allegheny Observatory, Allegheny, Pa. (54). 1907. A

Baker, Smith, M. D., 37 Winston Building, Utica, N. Y. (54). K

*Bakewell, Charles Montague, Yale University, New Haven, Conn. (54). 1906. I

Balch, Dr. Alfred William, Assistant Surgeon, U. S. N., Navy Department, Washington, D. C. (52). C K

*Balch, Edwin Swift, 1412 Spruce St., Philadelphia, Pa. (51). 1903. E H

Balch, Francis Noyes, Hunneman & Balch, 60 State St., Boston, Mass. (50). F

Baldwin, Mrs. Gertrude H., 3 Madison Ave., Detroit, Mich. (34). H

Baldwin, Helen, 53 East 20th St., New York, N. Y. (54). C

Baldwin, Herbert B., Analytic and Consulting Chemist, 927 Broad St., Newark, N. J. (43).

Baldwin, Jesse A., 708 Reaper Block, Chicago, Ill. (58).

*Baldwin, Prof. J. Mark, Johns Hopkins Univ., Baltimore, Md. (46). 1898. H

*Baldwin, Hon. Simeon E., Associate Judge of Supreme Court of Errors, New Haven, Conn. (50). 1901. I

*Baldwin, S. Prentiss, 736 Prospect St., Cleveland, Ohio. (47). 1900. E

Ball, Albert, Asst. in Physics, Cooper Union, New York, N. Y. (58). B

*Ball, Carleton R., U. S. Dept. Agriculture, Washington, D. C. (49). 1902. G

*Ball, Elmer Darwin, Professor of Zoölogy and Entomology, State Agricultural College, Logan, Utah. (50). 1903. F

Ball, Miss Helen Augusta, 43 Laurel St., Worcester, Mass. (50). F

Ballard, C. A., Curator of Museum, State Normal School, Moorhead, Minn. (51).

*Balliet, Thomas M., New York Univ., Washington Square, New York, N. Y. (48). 1903. H I

Ballou, Henry A., Entomologist, Imperial Dept. Agriculture, Barbados, B. W. I. (56). F

*Bancroft, Frank Watts, Ph. D., Instructor in Physiology, East Hall, University of California, Walnut Creek, Cal. (50). 1907. F K

Bancroft, J. Sellers, M. E., 919 Pine St., Philadelphia, Pa. (51). D

Bancroft, Jessie H., Asst. Dir. Physical Training, Department of Education of the City of New York, 500 Park Ave., New York, N. Y. (58). L

*Bancroft, Wilder Dwight, Professor of Chemistry, Cornell University, Ithaca, N. Y. (50). 1901. B C

BANGS, LEMUEL BOLTON, M. D., 39 E. 72d St., New York, N. Y. (36).

*Bangs, Outram, 20 Pemberton Square, Boston, Mass. (47). 1900. F

*Banker, Howard J., Prof. Biology, Depauw Univ., Greencastle, Ind. (51). 1905. G

Banks, Chas. S., Entomologist, Bureau of Science, Manila, P. I. (57). F

Banta, Arthur M., Ph. D., Dept. of Biology, Marietta College, Marietta, Ohio. (53). F

Barber, René Raoul, B. Sc., F. R. G. S., Georgetown, Ontario, Canada. (56). C

Barbour, Miss Carrie Adeline, Dept. of Geology, Univ. of Nebraska, Lincoln, Neb. (53). E

*Barbour, Erwin Hinckley, Prof. of Geology, Univ. of Nebraska, Lincoln, Neb. (45). 1898. E

*Barbour, Thomas, care of S. Henshaw, Mus. Comp. Zoology, Cambridge, Mass. (52). 1907. F

Barck, Dr. Carl, 2715 Locust St., St. Louis, Mo. (52). K

*Bardeen, Charles Russell, Professor of Anatomy, University of Wisconsin, Madison, Wis. (50). 1901. F K

Bardeen, Charles William, 406 So. Franklin St., Syracuse, N. Y (52).

Barger, Thomas M., 2724 Garfield Ave., Clyde, Ill. (58).

Barhydt, Mrs. P. Hackley, 40 E. 70th St., New York, N. Y. (57).

Barkan, Adolph, M. D., LL.D., James Flood Building, San Francisco, Cal. (51). K

*BARKER, PROF. G. F., 3909 Locust St., Philadelphia, Pa. (13). 1875. B C

*Barker, Lewellys, F., M. D., Professor of Medicine, Johns Hopkins Univ., 6 E. Franklin St., Baltimore, Md. (57). 1908. K

Barker, Mrs. Martha M., 42 Eleventh St., Lowell, Mass. (31). E H

Barker, Vincent K., 207½ E. Kennedy St., Syracuse, N. Y. (54). F G

Barlow, John, Professor of Zoölogy, R. I. College of A. and M. Arts, Kingston, R. I. (51). F

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Barnes, Edward W., Box 446, New York, N. Y. (49).

Barnes, Fred Asa, Asst. Prof. of Civil Engineering, Cornell University, Ithaca, N. Y. (56). D

Barnes, Howard Turner, Sc. D., Department of Physics, McGill University, Montreal, Canada. (57). B

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Barnes, Dr. William, Decatur, Ill. (57). K

Barnett, Mrs. Lelia Jefferson, Physics Building, Tulane University, New Orleans, La. (52). A

Barnett, Robert Crary, C. E., 510 Kansas City Life Bldg., Kansas City, Mo. (51). D

Barnhart, Arthur M., 185 Monroe St., Chicago, Ill. (42).

*Barnhart, John H., A. M., M. D., N. Y. Botanical Garden, Bronx Park, New York, N. Y. (49). 1903. G

Barnsley, George Thomas, Consulting Engineer, Fitzsimons Bldg., Pittsburgh, Pa. (51). D

*Barnum, Miss Charlotte C., Ph. D., U. S. Coast and Geodetic Survey, Washington, D. C. (36). 1896. A

Barnum, William M., 62 Cedar St., New York, N. Y. (57).

Barr, Charles Elisha, A. M., Professor of Biology, Albion College, Albion, Mich. (50). F

*Barr, John Henry, care of Smith Premier Typewriter Co., Syracuse, N. Y. (51). 1903 D

*Barrell, Joseph, Yale University Museum, New Haven, Conn. (51). 1905. E

Barrett, James Theophilus, First Asst. in Botany, Illinois. Agric. Exp. Sta., Univ. of Illinois, Urbana, Ill. (58). G

Barrett, Storrs Barrows, Secy. of Yerkes Observatory, Williams Bay, Wis. (58).

Barrie, Dr. George, The Highlands, Washington, D. C. (49). HI

Barringer, Daniel Moreau, Geologist and Mining Engineer, 460 Bullitt Building, Philadelphia, Pa. (50). DE

Barron, George D., Box 198, Rye, N. Y. (57).

*Barrows, Walter B., Professor of Zoology and Geology, Michigan Agricultural College, East Lansing, Mich. (40). 1897. F

Barrows, William Morton, Prof. New Hampshire Col., Durham, N. H. (57). F

Barry, D. E., 447 Lexington Ave., New York, N. Y. (57).

Bartholomew, C. E., Instructor in Entomology, Iowa State College, Ames, Iowa. (54). F

*Bartlett, Prof. Edwin J., Dartmouth College, Hanover, N. H. (28). 1883. C

*Bartlett, Francis, 40 State St., Boston, Mass. (50). 1906. I

Bartlett, George Miller, Instructor of Drawing and Descriptive Geometry, University of Michigan, Ann Arbor, Mich. (52). D I

Bartlett, John P., 205 West 57th St., New York, N. Y. (57).

*Bartley, Elias H., M. D., 21 Lafayette Ave., Brooklyn, N. Y. (33). 1894. C

*Barton, G. E., 419 N. High St., Millville, N. J. (46). 1898. C

*Barton, George Hunt, Boston Soc. of Natural History, 234 Berkeley St., Boston, Mass. (47). 1900. E

Barton, Philip Price, E. E., Sup't, Niagara Falls Power Co., 127 Buffalo Ave., Niagara Falls, N. Y. (50). D E

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*Bartow, Edward, Ph. D., University of Illinois, Urbana, Ill. (47). 1906. C

*Bartsch, Paul, Ph. D., Smithsonian Institution, Washington, D. C. (52). 1906. F

Baruch, Edgar B. S., M. S., care of The Pacific Sugar Construction Co., Hamilton City, Cal. (56). C

*Barus, Carl, Ph. D., Wilson Hall, Brown Univ., Providence, R. I. (33). 1887. B

Barwell, John William, Waukegan, Ill. (47).

*Bascom, Miss Florence, Bryn Mawr College, Bryn Mawr, Pa. (42). 1897 E

Bashore, Harvey B. (Dr.), West Fairview, Pa. (46). E

*Baskerville, Charles, Professor of Chemistry, College of the City of New York, New York, N. Y. (41). 1894. C E

*Basquin, Olin H., Associate Professor of Physics, Northwestern University, Evanston, Ill. (53). 1906. B D

Bassett, Carroll Phillips, Ph. D., Civil and Consulting Engineer, Summit, N. J. (51). D

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*Bauer, Louis A., Ph. D., The Ontario, Washington, D. C. (40). 1892. **A**

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Bausch, Henry, P. O. Drawer 1033, Rochester, N. Y. (41).

*Bawden, H. Heath, Univ. of Cincinnati, Cincinnati, Ohio. (51). 1905. **F H**

*Baxter, Gregory Paul, Chemical Laboratory, Harvard University, Cambridge, Mass. (54). 1906. **C**

*Bayley, Wm. Shirley, Assoc. Prof. of Geology, Univ. of Illinois, Urbana, Ill. (53). 1905. **E**

Beach, Miss Alice M., Brookside, Calistoga, Cal. (50). **F**

Beach, Charles Coffing, M. D., 54 Woodland St., Hartford, Conn. (50). **F K**

Beach, Miss Ella, Peekskill, N. Y. (57).

Beach, Henry Harris Aubrey, M. D., 28 Commonwealth Ave., Boston, Mass. (50). **F K**

*Beach, Spencer Ambrose, Iowa State College, Ames, Iowa. (41). 1900. **G**

Beal, James Hartley, Professor of Pharmacy, Scio College of Pharmacy, Scio, Ohio. (54). **C**

Beal, Walter Henry, Assistant, Office of Experiment Stations. U. S. Dept. Agriculture, Washington, D. C. (52).

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*Beardsley, Arthur E., M. S., Professor of Biology, Colorado State Normal School, Greeley, Colo. (50). 1901. **F**

Beates, Henry, Jr., M. D., President of State Board of Medical Examiners, 1504 Walnut St., Philadelphia, Pa. (51). **K**

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Beattie, J. C., D. Sc., F. R. S. E., South African College, Cape Town, S. Africa. (54). **F**

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Becker, Irwin A., care of Michael Reese Hospital, 29th and Graveland Ave., Chicago, Ill. (58). K

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Beers, William H., Jr., Chemist and Bacteriologist, Columbia, S.C. (58). C

Beeson, Jasper Luther, Professor, Georgia Normal and Industrial College, Milledgeville, Ga. (57). C

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*Bell, John Everett, M. E., care of The Babcock & Willcox Co., 85 Liberty St., New York, N. Y. (53). 1906. D

Bell, J. Finley, M. D., Englewood, New Jersey. (57). K

*Bell, Robert, M. D., LL.D., F. R. S., Geol. Survey, Ottawa, Can. (38). 1889. E F

Bell, William B., Asst. Prof. Zoölogy and Physiology, Agricultural College, N. D. (56). F

Beller, William Frank, B. S., Chief Liquidating Clerk, New York Custom House, 51 East 123d St., New York, N. Y. (56). **F H I**

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Bennett, Charles W., Coldwater, Mich. (50). **E**

Bennett, Henry C., Hotel Longacre, 157 West 47th St., New York, N. Y. (43).

Bennett, John N., Prof. of Mathematics, Doane College, Crete, Neb. (57). **A**

Bennett, Lee F., Prof. of Zoology and Geology, Valparaiso University, Valparaiso, Ind. (58). **F**

*Bennett, William Z., Ph.D., Director of Chemical Laboratory, Univ. of Wooster, Wooster, Ohio. (48). 1903. **C**

Bentley, Gordon M., Instructor in Zoology and Entomology, University of Tennessee, Knoxville, Tenn. (54). **F**

*Bentley, I. Madison, Assistant Professor of Psychology, Cornell University, Ithaca, N. Y. (54). 1906. **K**

*Bentley, William B., Professor of Chemistry, Ohio University, Athens, Ohio. (51). 1903. **C**

Bentley, Wilson A., Jericho, Vt. (48).

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*Benton, John Robert, Ph. D., Prof. of Physics and Electrical Engineering, Univ. of Florida, Gainesville, Fla. (51). 1906. **B**

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Berger, E. W., Ph. D., Entomologist, Fla. Exp. Sta., Gainesville, Fla. (57). F
*Bergey, David H., S. E. cor. 34th and Locust Sts., Philadelphia, Pa. (48). 1903. K
*Bergström, John Andrew, Ph. D., Professor of Education, Indiana University, Bloomington, Ind. (50). 1901. I
Berkeley, Wm. N., Ph. D., Food Lab., Appraisers Stores, Philadelphia, Pa. (49). C
*Berkey, Charles Peter, Ph. D., Tutor in Geology, Columbia University, New York, N. Y. (50). 1905. E
Bernheimer, Charles L., P. O. Box 1158, New York, N. Y. (49).
Berolzheimer, Daniel D., care of Arlington Chemical Co., Yonkers, N. Y. (55). C H
Berry, Daniel, M. D., Carmi, Ill. (41). B C E
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*Berry, Edward W., Johns Hopkins Univ., Baltimore, Md. (50). 1905. G
Berry, John Wilson, C. E., Pittston, Pa. (47).
*Bessey, Charles Edwin, Ph. D., LL. D., Univ. of Nebraska, Lincoln, Neb. (21). 1880. G
*Bessey, Ernst A., Subtropical Laboratory, Miami, Fla. (49). 1901. G
Bessey, J. Mortimer, M. D., 1814 Adams St., Toledo, Ohio. (51). K
Best, George Newton, M. D., Rosemont, N. J. (54). K
*Bethune, Rev. C. J. S., Ontario Agricultural College, Guelph, Ontario, Canada. (18). 1875. F
Betten, Cornelius, Lake Forest, Ill. (56). F
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Beutenmüller, Wm., Dept. Entomology, Am. Mus. Nat. History, New York, N. Y. (57). F
Bevier, George, Jr., Stanford University, Cal. (55). D
Bevier, Miss Isabel, Univ. of Illinois, Urbana, Ill. (46). C
*Beyer, Geo. Eugene, Prof. of Biology, Tulane University, New Orleans, La. (54). 1906. F G
*Beyer, Prof. Samuel W., Iowa Agricultural College, Ames, Iowa. (47). 1900. E
*Bibbins, Arthur Barneveld, Curator and Instructor in Geology and Mineralogy, The Woman's College, The Somerset, 2600 Maryland Ave., Baltimore, Md. (54). 1906. E

*Bickmore, Prof. Albert S., Amer. Mus. Nat. History, Central Park, New York, N. Y. (17). 1880. H

Bicknell, George H., Adj. Prof. of Ophthalmology and Otology, University of Nebraska College of Medicine, Omaha, Neb. (55). K

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Bigelow, Harriet W., Acting Director, Smith College Observatory Northampton, Mass. (57). A

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*Bigelow, Robert Payne, Ph.D., Mass. Institute of Technology, Boston, Mass. (51). 1903. F

*Bigelow, S. Lawrence, Ph.D., Asst. Professor of General Chemistry, University of Michigan, Ann Arbor, Mich. (51). 1903. C

*Bigelow, W. D., Bureau of Chemistry, Department of Agriculture, Washington, D. C. (53). 1906. G

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Bird, Henry, Rye, N. Y. (55). F

| Bird, Robt. Montgomery, Ph. D., School of Chemistry, Univ. of Virginia, Charlottesville, Va. (57). C

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Bishop, James Hall, 2520 Gough St., San Francisco, Cal. (51). H

Bishop, Mrs. Josephine Hall, 2309 Washington St., San Francisco, Cal. (51). H

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Bishop, Rev. Sam'l H., 500 West 122d St., New York City. (57).

Bishopp, Fred C., Bur. of Entomology, U. S. Dept. Agriculture, Washington, D. C. (54). F

*Bissell, G. W., Michigan Agriculture College, East Lansing, Mich. (53). 1905. D

Bissell, Leslie Dayton, Ph.D., St. Paul's School, Concord, N. H. (50). B

Bissing, William F., 2 Rector St., New York, N. Y. (55). B

Bitner, Henry F., Ph. D., Teacher of Natural Science, First Pennsylvania State Normal School, Millersville, Pa. (52). BCG

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Blackall, Clarence Howard, Architect, 20 Beacon St., Boston, Mass. (50). D

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Blackman, Elmer E., Nebraska State Historical Society, Lincoln, Neb. (58). H

Blackmore, Henry Spencer, 206 S. 9th Ave., Mount Vernon, N. Y. (49).

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Blackwood, A. L., M. D., 31 Washington St., Chicago, Ill. (58). K

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Blaine, Anita McCormick, 344 East Erie St., Chicago, Ill. (58).

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Blaise, T. T., Mason City, Iowa. (58).

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*Blake, Francis, Auburndale, Mass. (23). 1874. AB

*Blake, William Phipps, Mill Rock, New Haven, Conn. (54). 1906. E

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Blakeslee, Albert Francis, Dept. of Botany, Conn. Agric. College, Storrs, Conn. (52). G

Blakiston, Kenneth M., 1012 Walnut St., Philadelphia, Pa. (54).
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Blanchard, Charles A., Wheaton College, Wheaton, Ill. (58).
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*Bleile, Albert M., M. D., State University, Columbus, Ohio (37). 1896. **F**
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*Bliss, Charles B., Ph. D., Hampden, Mass. (49). 1906. **H I**
Bliss, Hon Cornelius N., P. O. Box 1499, New York, N. Y. (49).
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Bliss, Mrs. Wm. H., 6 East 65th St., New York City. (57).
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Bloodgood, Joseph Colt, Asst. Prof. Surgery, Johns Hopkins Univ., Baltimore, Md. (55). **K**
Bloomhardt, Dr. Fred H., Altoona, Pa. (58).
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Boericke, F. A., M. D., 1101 Arch Street, Phila., Pa. (58). **K**
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Bond, R. I., M. D., Hartshorne, Ind. T (50). **K**

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Boyce, James, Chief Chemist, Amer. Cotton Oil Co., 225 East 19th Street, Chicago, Ill. (58). **C**

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*Boye, Martin H., M. D., Coopersburg, Pa. (1). 1896. C
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Brackett, Byron B., Ph. D., Electrical Engineering, Clarkson School of Technology, Potsdam, N. Y. (46). B
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*Brackett, Frank Parkhurst, Professor of Mathematics, Pomona College, Claremont, Cal. (50). 1906. A
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Bradley, Arthur C., Newport, N. H. (43).
Bradley, C. E., Experiment Station, Corvallis, Ore. (54). C
Bradley, Charles S., 41 Park Row, New York, N. Y. (40).
Bradley, J. Chester, Cornell Univ., Ithaca, N. Y. (54). F
Bradley, Milton, Springfield, Mass. (44). B
Bradley, M. J., 373 Fulton St., Brooklyn, N. Y. (43).
Bradley, Stephen Rowe, Nyack, New York. (51)
*Bradley, Walter Parke, Ph. D., Professor of Chemistry, Wesleyan University, Middletown, Conn. (50). 1906. C
Brady, William, Supt. Ill. Steel Works of Chicago, 7642 Marquette Ave., Chicago, Ill. (58). C
Brainerd, Erastus, care of The Post Intelligencer, Seattle, Wash. (52). H
Bramwell, Geo. W., 335 Broadway, New York, N. Y. (43). D
*Branner, Prof. John C., Stanford University, Cal. (34). 1886. E F
Brannon, Melvin Amos, 207 Chestnut St., Grand Forks, N. Dak. (55).
*Branson, Edwin Boyer, Ph. D., Associate Professor Geology Oberlin College, 20 S. Prospect St., Oberlin, O. (57). E
*Brasefield, Stanley Eugene, Instructor in Mathematics, Lafayette College, Easton, Pa. (50). 1906. A
*Brashear, John A., Allegheny, Pa. (33). 1885 A B D
Brassill, Miss Sarah Ellen, South Weymouth, Mass. (47). F G
Braunnagel, Jules L. A., M. D., P. O. Box 925, San Antonio, Texas. (50). F
*Bray, William L., Professor of Botany, Univ. of Texas, Austin, Texas. (49). 1901. G
Brayton, Sarah H., M. D., The Hereford, Evanston, Ill. (33).
Breed, Robert Stanley, Ph. D., Department of Biology and Geology, Allegheny College, Meadville, Pa. (51). F

Breese, Burtis Burr, Prof. of Psychology, Univ. of Cincinnati, Cincinnati, Ohio. (54). K

Breidenbaugh, Prof. Edward S., Pennsylvania College, Gettysburg, Pa. (57).

*Brenke, William Charles, 1833 L St., Lincoln, Neb. (56). 1908. A

Brett, George Monroe, Hartley Hall, 115th St. and Amsterdam Ave., New York, N. Y. (54). A D

Bretz, J. Harlan, Franklin High School, Seattle, Washington. (57). E

*Brewer, Charles Edward, Professor of Chemistry, Wake Forest College, Wake Forest, N. C. (50). 1903. C

*Brewer, Prof. Wm. H., 418 Orange St., New Haven, Conn. (20). 1875 E F I

Brewster, Edwin Tenney, Instructor in Natural Sciences, Phillips Academy, Andover, Mass. (51). F G

Brewster, Frank H., M. E., 90 Bidwell Parkway, Buffalo, N. Y. (51). D

Brewster, Mary Jones, M. D., Prof. Physiology and Hygiene, Smith College, Northampton, Mass. (54). K

Brice, Judge Albert G., 901 Hennen Bldg., New Orleans, La. (32). H

Brichett, J. G., Cardwell, Mo. (58).

*Bridge, Norman, M. D., 800 Auditorium Bldg., Los Angeles, Cal. (51). 1906. K

Briggs, Edward Cornelius, Prof. of Dental Materia Medica and Therapeutics, Harvard Medical School, Boston, Mass. (50). F K

*Briggs, Lyman J., U. S. Dept. Agriculture, Washington, D. C. (48). 1901. B

Briggs, Wallace Alvin, M. D., 1300 I St., Sacramento, Cal. (51). K

*Brigham, Albert Perry, Professor of Geology, Colgate Univ., Hamilton, N. Y. (41). 1900. E

[Brigham, William T., Director of B. P. Bishop Museum of Polynesian Ethnology and Natural History, Honolulu, H. T. (54). H

Bright, Richard Riggs, Ordnance Bureau, Navy Dept., Washington, D. C. (52). D

*Brill, George M., Consulting Engineer, 1134 Marquette Building, Chicago, Ill. (51). 1906. D

Brill, Nathan Edwin, M. D., 48 West 76th St., New York, N. Y. (54). H K

*Brinckerhoff, Walter Remsen, Public Health and Marine Hospital Service, Honolulu, Hawaii. (55). 1907. K

Bristol, John I. D., Metropolitan Building, 23d St. and Madison Ave., New York, N. Y. (49).

*Bristol, Wm. H., 36 W. 59th St., New York, N. Y. (36). 1894. D

*Britton, N. L., Ph. D., N. Y. Botanical Garden, Bronx Park, New York, N. Y. (29). 1882. E G

BRITTON, WILBY, Special Pension Examiner, Springfield, Mo. (40). F

*Britton, Wilton Everett, Ph. D., State Entomologist, Agricultural Ex. Sta., New Haven, Conn. (54). 1906. F

Broadhurst, Jean, Dept. Biology. Teachers College, New York, N. Y. (54). G

Brock, Henry M., S. J., Professor of Physics, Holy Cross College, Worcester, Mass. (57). B

*Brock, Reginald Walter, Professor of Geology, School of Mining, Kingston, Ont., Canada. (54). 1908. E

Brodrick, C. T., 29 Weld Hall, Cambridge, Mass. (57). E

Bronson, Dr. E. B, 10 W. 49th St., New York, N. Y. (49)

Brooke, W. E., 405 Oak St., S. E., Minneapolis, Minn. (58).

Brookover, Charles, Univ. of Chicago, Chicago, Ill. (55). F

*Brooks, Alfred Hulse, U. S. Geological Survey, Washington, D. C. (52). 1905. E

Brooks, Charles, Durham, N. H. (53). G

Brooks, J. Ansel, Instructor in Mech. Drawing, Brown University, Providence, R. I. (54). D

Brooks, Paul P. B., Science Teacher, State Line, Ind. (58). B

*Brooks, Wm. Keith, Ph. D., Johns Hopkins Univ., Baltimore, Md. (52). 1903. F

Brooks, Prof. Wm. P., Amherst, Mass. (38). C F

*Brooks, Wm. R., D. Sc., Director Smith Observatory and Professor of Astronomy, Hobart College, Geneva, N. Y. (35). 1886. A B D

Broomell, Francis E., 99 Washington St., Chicago, Ill. (58).

Brown, Judge Addison, 45 W. 89th St., New York City. (57). I

*Brown, Amos Peaslee, Ph. D., Professor of Geology and Mineralogy, Univ. of Pennsylvania, Philadelphia, Pa. (50). 1906. E

*Brown, Arthur Erwin, Secy. Zoological Society of Philadelphia, 1208 Locust St., Philadelphia, Pa. (51). 1905. F

Brown, Austin H., Jr., Genl. Mgr. Trinity Copper Co., Kennett, Cal. (52). D

Brown, Calvin S., D. Sc., Ph. D., University, Miss. (54). E F G

Brown, C. Arthur, 218 Washington St., Lorain, Ohio. (56). C

Brown, Charles W., Dept. Geology, Brown Univ., Providence, R. I. (54). E

Brown, Rev. Clement, 1440 M St., N. W., Washington, D. C. (52).

Brown, D. Walter, Ph. D., Patent Counsel, 5 Beekman St., New York, N. Y. (55). D

Brown, Edgar, Botanist in Charge of Seed Laboratory, Department Agriculture, Washington, D. C. (52). G

Brown, Elias G., A. B., M. D., Founder and Director of the Mountain School for boys, Allaben, Ulster Co., 481 West 145th St., New York, N. Y. (56). **H K L**

*Brown, Elisha Rhodes, President Stafford Savings and National Banks, 50 Silver St., Dover, N. H. (50). 1907. **I**

*Brown, Hon. Elmer Ellsworth, Commissioner of Education, Washington, D. C. (57). 1907. **I**

*Brown, Ernest William, Yale University, New Haven, Conn. (53). 1906. **A B**

Brown, Fay Cluff, Merwick, Princeton, N. J. (55) **B**

Brown, Frederick M., Counsellor at Law, 54 Wall St., New York, N. Y. (58).

Brown, Frederick Tilden, 14 E. 58th St. New York, N. Y. (57). **K**

Brown, George A., 1111 N. Prairie St., Bloomington, Ill. (58).

*Brown, George Lincoln, Professor of Mathematics and Astronomy, State Agricultural College, Brookings, South Dakota. (55). 1907. **A**

Brown, Glenn V., 214 DeKalb Sq., Philadelphia, Pa. (51). **B C E**

Brown, John R., Asst., Northwestern Univ., 1918 Sherman Ave., Evanston, Ill. (58). **B**

*Brown, Joseph Stanford, 489 Fifth Ave., New York, N. Y. (50). 1906. **D**

Brown, Lucius Polk, 310 Union St., Nashville, Tenn (54). **C E**

Brown, Newton H., A. and M. College of Texas, College Station, Texas. (48). **B D**

*Brown, Robert, Yale University Observatory, New Haven, Conn. (11). 1874. **A B E F G**

*Brown, Mrs. Robert, Observatory Place, New Haven, Conn. (17). 1874. **F G**

Brown, Robert Marshall, Instructor in Geography, State Normal School, Worcester, Mass. (48). **E**

Brown, Samuel B., W. Va. University, Morgantown, W. Va. (40). **E**

*Brown, Stewardson, 20 E. Penn St., Germantown, Philadelphia, Pa. (50). 1906. **I**

Brown, Thomas C. (57). **E**

Brown, Wm. Adams, 114 East 30th St., N. Y. (57).

Brown, William George, Prof. of Chemistry, Univ. of Missouri, Columbia, Mo. (58). **C**

Browne, Arthur Lee, 213 Courtland St., Baltimore, Md. (56.) **C**

*Browne, Arthur Wesley, Ph. D., Asst. Prof. of Chemistry, Cornell University, 957 E. State St., Ithaca, N. Y. (57). 1908. **C**

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Browne, W. R., C. E., Bethany Beach, Sussex Co., Deleware. (54). **D**

Brownell, Silas B., 71 Wall St., New York, N. Y. (36).

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BROWNING, J. HALL, 199 Chambers St., New York, N. Y. (57).

*Browning, Philip Embury, Kent Chemical Laboratory, Yale University, New Haven Conn. (46). 1903. C

*Browning, William, M. D., Professor of Diseases of the Mind and Nervous System, Long Island College Hospital, 54 Lefferts Place, Brooklyn, N. Y. (53). 1906. K

Bruckner, Arthur, Instructor in Physics, College of the City of New York, New York, N. Y. (55). B

*Brues, Charles Thomas, Milwaukee Public Museum, Milwaukee, Wis. (54). 1906. F

Bruggerhof, F. W., 33 Barclay St., New York, N. Y. (49).

Brundage, Albert H., M. D., Milwaukee Medical College, 2404 State St., Milwaukee, Wis. (43). F G H

Bruner, Frank G., care of Board of Education, 808 Tribune Building, Chicago, Ill. (55). H K

*Bruner, Henry Lane, Ph. D., 360 S. Ritter Ave., Indianapolis, Ind. (50). 1906. F

*Bruner, Lawrence, Professor of Entomology, Univ. of Nebraska, Lincoln, Neb. (50). 1901. F

BRUNTON, DAVID WILLIAM, Mining Engineer, 865 Grant Ave., Denver, Colo. (50) D E

*Brush, Charles F., 1003 Euclid Ave., Cleveland, Ohio. (35). 1886. B

*BRUSH, PROF. GEORGE J., Yale Univ., New Haven, Conn. (4). 1874. C E

Bryan, Enoch A., President, The State College of Washington, Pullman, Wash. (54). I

*Bryan, William Alanson, B. P. Bishop Museum, Honolulu, H. T. (55). 1908. F

*Bryan, Prof. William L., Indiana Univ., Bloomington, Ind. (49). 1900. H

Bryant, Miss Dixie Lee, Ph. D., 464 W. Adams St., Chicago, Ill. (42). E

Bryant, Edward S., 914 Oliver Bldg., 141 Milk St., Boston, Mass. (56). E

*Bryant, Henry G., 2013 Walnut St., Philadelphia, Pa. (51). 1905. E

*Bryant, Owen, Cohasset, Mass. (54). 1906. K

Bryant, W. Sohier, M. D., 57 West 53d St., New York, N. Y. (54). K

*Bryce, Rev. Dr. Geo., 189 Colony Street, Winnipeg, Manitoba, Canada. (57). 1880.

Bryson, Andrew, C. E., President Brylgon Steel Casting Co., New Castle, Del. (51). D

Buchanan, James Isaac, Vice-President Pittsburg Trust Co., Conestoga Building, Pittsburg, Pa. (51). I

*Bucher, John Emery, Associate Professor of Organic Chemistry, Brown University, Providence, R. I. (54). 1908. C

*Buchner, Edward Franklin, Ph. D., Professor of Philosophy and Education, University of Alabama, University, Ala. (49). 1901. H

Buck, Thomas, 5825 Kimbark Ave., Chicago, Ill. (58). A

Buckham, Mrs. Geo., 29 East 29th St., New York City. (57).

*Buckhout, W. A., School of Agriculture, State College, Pa. (20). 1881. G

Buckingham, Chas. L., 38 Park Row, New York, N. Y. (28).

*Buckley, Ernest Robertson, Ph. D., Director, Bureau of Geology and Mines and State Geologist of Missouri, Rolla, Mo. (52) 1905. E

Budington, Robert A., Dept. Zoology, Wesleyan Univ., Middletown, Conn.* (52). F K

Bües, Christian Rudolf August, care of Juan E. Talladares Apartado 987, Lima, Peru. (56). F

*Buffum. Burt C., Worland, Wyoming. (42). 1906. G

Bull, Coates P., Assistant Professor Agr., Univ. of Minnesota, St. Anthony Park, Minn. (52). D G

*Bullard, Warren Gardner, Ph. D., Associate Professor of Mathematics, Syracuse University, Syracuse, N. Y. (50). 1906. A

Bullene, Mrs. Emma F. Jay, 1409 Broadway, Denver, Colo. (50). H

Bullitt, James B., M. D., Professor of Anatomy, Univ. of Mississippi, University, Miss. (55). K

*Bumpus, Prof. Hermon C., Am. Mus. Nat. Hist., Central Park, West 77th St., New York, N. Y. (49). 1900.

Bundy. Dr. A. D., Cleveland Block, Osage, Iowa. (58). K

Bunker, Henry A. M. D., 158 6th Ave., Brooklyn, N. Y. (50). I

Burbank, John E., In charge of U. S. Magnetic Observatory, Cheltenham, Md. (57). B

*Burbank, Luther, Santa Rosa, Cal. (50). 1901. G

Burchard, Anson W., 44 Broad St., New York, N. Y. (51). D

Burdge, Franklin, 325 West 57th St., New York City. (57).

Burdick, Lewis Dayton, Oxford, N. Y. (52). I

*Burgess, Albert F., Bureau of Entomology, U. S. Dept. Agriculture, Washington, D. C. (54). 1906. F

*Burgess, Edward S., 11 W. 88th St., New York, N. Y. (47). 1901. G

*Burgess, George Kimball, Ph. D., Bureau of Standards, Washington, D. C. (55). 1907. B

*Burgess, Thomas J. W., M. D., Medical Supt. Protestant Hospital for the Insane, Montreal, Can. (38). 1889. G E

Burk, W. E., Chief Chemist and Bacteriologist, Louisville Water Co., 1112 Hepburn Ave., Louisville, Ky. (55). **C K**

Burke, M. D., C. E., 18 East Fourth St., Cincinnati, Ohio. (50). **A B C D E**

Burke, Raymond H., Dept. of Geology, Miami University, Oxford, Ohio. (58). **E**

Burke, Robert E., S. B., Boston Normal School, Boston, Mass. (50). **C**

*Burkett, Charles William, Ph. D., Director Agr. Exp. Sta., Manhattan, Kansas. (53) 1906. **C**

Burleigh, Geo. Wm., 52 Wall St., New York City. (57). **I**

Burling, L. C., 411 Clayton St., Waukegan, Ill. (58).

Burlingame, L. Lancelot, Univ. of Chicago, Chicago, Ill. (58). **G**

Burnett, Charles Theodore, Ph. D., Instructor in Psychology, Bowdoin College, Brunswick, Me. (54). **F K**

Burnett, Fredk., 269 Front St. E., Toronto, Canada. (56). **D I**

*Burnette, F. H., Professor of Horticulture, Louisiana State University, Baton Rouge, La. (54). 1906. **F G**

Burnham, A. C., Presbvterian Hospital, 70th St. and Madison Ave., New York, N. Y. (57).

Burnham, George, Jr., C. E., of Burnham, Williams & Co., Baldwin Locomotive Works, 214 N. 34th St. Philadelphia, Pa. (51). **D**

Burnham, Prof. William H., Clark Univ., Worcester, Mass. (58). **L**

Burns, Elmer Ellsworth, B. S., Dept. of Physics and Chemistry, High School, Berwyn, Ill. (58). **B C**

*Burr, Prof. William H., Columbia University, 151 West 74th St., New York, N. Y. (31). 1883.

Burrell, Rámon Haddock, M. D., Creighton, Neb. (51). **K**

*Burrill, Thomas J., Professor of Botany, University of Illinois, Urbana, Ill. (53). 1905. **G**

*Burt, Edward Angus, Ph. D., Professor of Natural History, Middlebury College, Middlebury, Vt (50). 1901. **G**

Burt, Silas W., 30 Broad St., New York City. (57).

*Burton, Hon. Theodore E., M. C., Cleveland, Ohio, (52). 1905. **I**

*Burton-Opitz, Russell, Instructor in Physiology, Columbia University, New York, N. Y. (52). 1905. **K**

*Busch, Frederick Carl, M. D., 145 Allen St., Buffalo, N. Y. (49). 1906. **F**

Bush, John C. F., M. D., Wahoo, Neb. (51). **K**

*Bushnell, D. I., Jr., care of Bureau of Ethnology, Washington, D. C. (51). 1903. **H**

Bustamanty, Delfin S., Sequi 1016, Adroqué, F. C. S., Argentine Republic, S. A. (57). **G**

*Butler, Amos W, Secretary Board of State Charities, Indianapolis, Ind. (30). 1885. **F H**

Butler, Bert S., U. S. Geol. Survey, Washington, D. C. (57). **E**

Butler, Matthew Joseph, Deputy Minister and Chief Engineer, Dept. Railways and Canals, Ottawa, Ontario, Canada. (51). **D**

Butler, Paul, care of U. S. Cartridge Co., Lowell, Mass. (57) **C**

Butler, Wm. Mill, 321 St. Nicholas Ave., New York City. (57).

Butterfield, Arthur Dexter, Professor of Mathematics and Mechanics, University of Vermont, Burlington, Vt. (50). **A D**

Butterfield, Mrs. Daniel, 616 Fifth Ave., New York City. (57).

Butters, Fred K., 815 So. 7th St., Minneapolis, Minn. (58).

*Buxton, Bertram H., Professor Experimental Medicine, Cornell Medical College, 1 W. 101st St., New York, N. Y. (54). 1907. **F G**

Byrnes, Dr. Chas. Metcalfe, Prof. of Anatomy, University of Va., Charlottesville, Va. (57). **K**

Byrnes, Owen, Mining Engineer, Gould, Mont. (51). **D E**

*Cady, Hamilton Perkins, Assistant Professor of Chemistry, University of Kansas, Lawrence, Kansas. (52). 1906. **B C**

Cady, Walter B., Chemist for Wabash Portland Cement Co., Cement City, Michigan. (56). **C**

*Cady, Walter G., A. M., Ph. D., 151 High St., Middletown, Conn. (49). 1906. **B**

Cady, William Hamlin, Chemist, Continental Color Co., 127 Power St., Providence, R. I. (57). **C**

*Cain, William, Professor of Mathematics, University of North Carolina, Chapel Hill, N. C. (50). 1901. **A D**

*Cajori, Florian, Professor of Mathematics, Colorado College, Colorado Springs, Colo. (50). 1901. **A**

Caldwell, Benjamin Palmer, A. B., Ph. D., Associate Professor of Chemistry, Tulane University, New Orleans, La. (55). **C**

*Caldwell, Prof. Otis W., Dept. of Botany, Univ. of Chicago, Chicago, Ill. (49). 1902. **G**

Calhoun, Fred H. H., Ph. D., Professor of Geology and Mineralogy, Clemson College, S. C. (54). **E**

*Calkins, Gary N., Ph. D., Professor of Protozoology, Columbia University, New York, N. Y. (49). 1901. **F**

Calkins, Marshall, M. D., 14 Maple St., Springfield, Mass. (29).

Call, Henry Lawrens, Box 1260, Boston, Mass. (57).

Calm, Charles E., Ph. D., 41-43 Warren St., New York, N. Y. (56). **C**

*Calvert, Philip P., Ph. D., Instructor in Zoology, Biological Hall, Univ. of Pennsylvania, Philadelphia, Pa. (50). 1903. **F**

*Calvert, Prof. Sidney, M. A., University of Missouri, Columbia, Mo. (47). 1903. **C**

*Calvin, Prof. Samuel, Director Iowa Geol. Survey, Iowa City, Iowa. (37). 1889. E F

*Cameron, Frank K., Ph. D., Chemist, Bureau of Soils, U. S. Dept. Agriculture, Washington, D. C. (49). 1901. C

Cameron, John E., Central High School, Kansas City, Mo. (54). G

Cammann, Hermann H., 51 Liberty St., New York, N. Y. (49).

Camp, Frederick A., 32 West 129th St., N. Y. (57). E

*Campbell, Douglas H., Professor of Botany, Stanford University, Cal. (34). 1888. G

*Campbell, Henry Donald, Professor Geology and Biology, Washington and Lee University, Lexington, Va. (52). 1905. E F G

Campbell, Leslie Lyle, Ph. D., 65 Hammond St., Cambridge, Mass. (48).

*Campbell, Marius Robison, U. S. Geological Survey, Washington, D. C. (52). 1905. E

Campbell, Wm. Francis, M. D., 394 Clinton Ave., Brooklyn, N. Y. (57). K

Campbell, Wm. Mullan, Asst. Prof. Physics, New York University, 56 East 69th St., New York City. (57). B

*CAMPBELL, WILLIAM WALLACE, Director of Lick Observatory, Mt. Hamilton, Cal. (50). 1901. A

Canfield, Geo. F., 49 Wall St., N. Y. (57).

*Cannon, George Lyman, Instructor in Geology, East Side High School, Denver, Colo. (39). 1901. E

*Cannon, W. A., Ph. D., Desert Botanical Laboratory, Tucson, Ariz. (52). 1905. G

*Cannon, Walter Bradford, Harvard Medical School, Boston, Mass. (54). 1906. K

Canter, Hall, Ph. D., Professor of Chemistry, Randolph-Macon College, Ashland, Va. (54). C

Capps, Joseph A., 2216 Prairie Ave., Chicago, Ill. (58). K

Cardiff, Ira D., Ph. D., Prof. of Botany, Univ. of Utah, Salt Lake City, Utah. (58). G

*Carhart, Prof. Henry S., Univ. of Michigan, Ann Arbor, Mich. (29). 1881. B

Carhart, Paul Worthington, care of G. & C. Merriam Co., Springfield, Mass. (56). B

*Carleton, M. A., U. S. Dept. Agriculture, Washington, D. C. (42). 1894. G

*Carlson, Anton Julius, Ph. D., Associate in Physiology, Univ. of Chicago, Chicago, Ill. (52). 1906. K

*Carmalt, William Henry, Professor of Surgery, Yale University, New Haven, Conn. (54). 1906. K

Carman, Albert P., Prof. of Physics, Univ. of Illinois, Urbana, Ill. (58). B

Carman, George N., Dir. of and Prof. of Economic Sect., Lewis Institute, Chicago, Ill. (58). I

*Carmichael, Robert Daniel, Prof. Mathematics, Alabama Presbyterian College, Anniston, Ala. (57). 1908. A

Carnegie, Thomas Morrison, 542 Fifth Ave., New York, N. Y. (50). F

Carney, Frank, Prof. of Geology, Denison University, Granville, Ohio. (58). E

Carpenter, Rev. Charles Knapp, Aurora, Ill. (55). F

Carpenter, Chas. W., 504 Grand St., New York, N. Y. (57).

Carpenter, Ford A., U. S. Weather Bureau, San Diego, Cal. (44). B

Carpenter, Frances Ann, M. D., Belleview-Manchester, Madison Ave., and Bloom St., Baltimore, Md. (54). K

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Carpenter, Frederic Walton, Ph. D., Instructor in Zoology, Univ. of Illinois, 1013 W. California Avenue, Urbana, Ill. (58). F

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Carr, William Kearny, 1413 K St., N.W., Washington, D. C. (52).

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Carrington, Thomas Spees, M. D., Surgeon in charge, Am. Hospital and Training School for Nurses, Constantinople, Turkey. (55). K

Carroll, Anna Laurie, Plattsburgh, Clinton Co., N. Y (57). B

Carruth, John G., Indiana Ave. and Rosehill St., Philadelphia, Pa. (54). D

Carson, Lewis Clinton, 181 W. Alexandria Ave., Detroit, Mich. (54). I

Carson, Shelby Chadwick, M. D., Greensboro, Ala. (51). K

Carstens, J. H., M. D., Detroit, Mich. (58). K

*Carter, James C., 277 Lexington Ave., New York, N. Y. (36). 1906.

Carter, John E., Knox and Coulter Sts., Germantown, Pa. (33). B H

Carter, Robert A., 4 Irving Place, New York City. (58).

Carty, John Joseph, Chief Engineer, N. Y. Telephone Co., 15 Dey St., New York, N. Y. (54). D

*Carus, Paul, Ph. D., Editor Open Court Pub. Co., 1322 Wabash Ave., Chicago, Ill. (40). 1895. H

Cary, Mrs. Elizabeth M. L., 184 Delaware Ave., Buffalo, N. Y. (45). E

Case, Eckstein, Case School of Applied Science, Cleveland, Ohio. (47).

*Case, Ermine Cowles, Dept. of Geology, University of Mich., Ann Arbor, Mich. (50). 1906. **B C E**

Case, Willard E., Auburn, N. Y. (57).

Case, Zophar, M. D., Warrensburg, Mo. (58). **K**

*Casey, Thomas L., Lt. Col. Corps of Engineers, U. S. A., Office of Light House Board, Washington, D. C. (38). 1892. **D F**

Cassel, Amos M., Erie Business College, Erie, Pa. (57). **I**

*Castle, W. E., Asst. Professor Zoology, Harvard Univ., Museum of Comparative Zoölogy, Cambridge, Mass. (52). 1903. **F**

Cathcart, Miss J. R., care Munroe & Co., 7 Rue Scribe, Paris, France. (50).

*Catlin, Charles A., 133 Hope St., Providence, R. I. (33). 1895. **C**

*Cattell, H. W., M. D., 3709 Spruce St., Philadelphia, Pa. (50). 1901. **K**

*Cattell, Prof. James McKeen, Columbia Univ., New York, N. Y. (44). 1896. **B F H I**

Cerna, Dr. David, Mayor, Monclora, Coahuila, Mexico. (51).

Chadbourn, Erlon R., Melrose, Mass. (29).

Chadwick, George Halcott, Prof. Geology and Biology, St. Lawrence Univ., Canton, N. Y. (54). **E F**

*Chaillé, Stanford E., M. D., LL.D., Dean of Medical Department, Tulane University, New Orleans, La. (51). 1903. **K**

*Chamberlain, Charles Joseph, Dept. of Botany, University of Chicago, Chicago, Ill. (50). 1902. **G**

*Chamberlain, Clark Wells, Professor of Physics, Denison University, Granville, Ohio. (53). 1907. **B**

Chamberlain, Edward B., 503 West 121st St., New York, N. Y. (57). **F G**

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*Chamberlin, T. C., Head of Dept. of Geology, Univ. of Chicago, Chicago, Ill. (21). 1877. **B E F H**

Chambers, Frank R., 842 Broadway, New York, N. Y. (50).

Chambers, Harry L., M. D., Lecompton, Kansas. (57). **K**

Chambers, Will Grant, M. S., A. M., Professor of Psychology and Education, State Normal School, Greeley, Colo. (52). **H**

*Chambliss, Charles E., State Entomologist, Columbia, S. C. (51). 1906. **F**

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*Howison, George Holmes, LL. D., Mills Professor of Philosophy, Univ. of California, Berkeley, Cal. (54). 1908. A

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Hoyt, Olive Sawyer, Kobe College, Kobe, Japan. (52). C

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Hubbard, Geo. D., Asst. Prof. Geology, Ohio State Univ., Columbus, Ohio. (55). E

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Hume, Alfred, C. E., University, Miss. (39). A

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Humphreys, Alex. C., M. E., C. E., 31 Nassau St., New York, N. Y. 1907. (49).

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Jones, Grinnell, Harvard University, Cambridge, Mass. (52). C

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Jones, Richard Watson, LL. D., Laurel, Miss. (55). C

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Jordan, H. E., Ph. D., Adj. Prof. Histology and Embryology, Univ. of Virginia, Charlottesville, Va. (57). F

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Kahl, Hugo, Carnegie Museum, Pittsburg, Pa. (50). F
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Kearfott, W. D., Montclair, N. J. (54). F
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Keilholtz, Pierre Otis, Consulting Engineer, Continental Trust Building, Baltimore, Md. (50). D
Keim, Edward Tudor, E. E., Supt. Am. Dist. Tel. Co., 1421 Champa St., Denver, Colo. (50). D E F
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Knapp, G. N., R. F. D. 1, Stanton, Minn. (46). G H

*Knapp, Hon. Martin A., Interstate Commerce Commission, Washington, D. C. (52). 1903. I

Knapp, S. A., Ph. D., U. S. Dept. Agriculture, Washington, D. C. (54). G

*Knight, Prof. Charles M., 129 Union St., Akron, Ohio. (29). 1903. B C

*Knipp, Charles Tobias, 913 West Nevada St., Urbana, Ill. (46). 1900. B

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*Knower, Henry McElderry, Ph. D., Johns Hopkins University, Medical Dept., Baltimore, Md. (52). 1905. F

Knowlton, Frank P., A. M., M. D., Asso. Prof. Physiology, Syracuse Univ. Medical Coll., Syracuse, N. Y. (58). K

Knox, Francis Henry, Boise, Idaho. (50). D

Knox, Geo. Platt, Asst. Supt. of Instr., St. Louis Public Schools, 9th and Locust Sts., St. Louis, Mo. (53). C

Knox, Rev. George Wm., Prof. of Philosophy, Union Theological Seminary, New York, N. Y. (55). H I

Knox, Henry H., Mining Engineer, 82 Beaver St., New York, N. Y. (50). D

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*Kofoid, Prof. Charles Atwood, University of California, Berkeley, Cal. (48). 1899. F

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Kollock, Lily G., Univ. of Illinois, Urbana, Ill. (57). C

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Krause, Otto H., Prospect Ave., Hackensack, N. J. (50).
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Krécsy, Prof. Béla, VI Bulyovsxky u. 26, Budapest, Hungary. (41). C
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Lansing, John Ernest, Hobart College, Geneva, N. Y. (52). C

Lantz, Miss Willie A., Teacher of Science, Woman's College, Frederick, Md. (54). F G

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*Leverett, Frank, 312 N. Thayer St., Ann Arbor, Mich. (37). 1891. E

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*Lewis, A. B., C. E., Seward, Alaska. (55). 1908. D

Lewis, Albert Buell, Field Museum, Chicago, Ill. (58).

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LEWIS, CLARENCE MCKENZIE, care Wm. Salomon & Co., 25 Broad St., New York, N. Y. (47). D

Lewis, Daniel C., Milville, N. J. (57). C D

*Lewis, E. Percival, Associate Professor of Physics, University of California, Berkeley, Cal. (53). 1905. B

Lewis, George Smith, 746 State St., Springfield, Mass. (44). G

*Lewis, J. Volney, Hertzog Hall, Rutgers College, New Brunswick, N. J. (45). 1900. C E

Lewis, Dr. Warren H , Associate Professor of Anatomy, Johns Hopkins University, Baltimore, Md. (57). K

Lewis, Wilfred, Pres. The Tabor Mfg. Co., 5901 Drexel Road, Philadelphia, Pa. (51). 1906. D

Lewisohn, Adolph, 9 West 57th St., New York, N. Y. (57).

Lewton, Frederick Lewis, U. S. Dept. Agriculture, Washington, D. C. (54). F G

Lewton-Brain, L., Director, Division Pathology and Physiology, H. S. P. A. Experiment Station, Honolulu, H. T. (55). G

Libbey, Frederick A., 30 Broad St., New York, N. Y. (57).

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Lichtenauer, Jos. M., 20 Broad St., New York, N. Y. (57). K

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*Lillie, Frank R., Professor of Zoology, University of Chicago. Chicago, Ill. (50). 1901. F

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Lindenkohl, Henry, U. S. Coast and Geodetic Survey, Washington, D. C. (47).

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*Lindsey, Edward, Warren, Pa. (48). 1906. **H I**

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Linford, James Henry, President of the Brigham Young College, Logan, Utah. (52). **F**

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Linn, George A., M. D., P. O. Box 813, Monongahela, Pa. (51). **K**

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Litchfield, Lawrence, M. D., 5431 Fifth Ave., Pittsburg, Pa. (51). **K**

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*Snyder, Prof. Monroe B., Philadelphia Astronomical Observatory, Philadelphia, Pa. (24). 1882. A B

*Snyder, Zachariah Xenophon, President, State Normal School, Greeley, Colo. (50). 1907. F

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Stanley, William, Great Barrington, Mass. (50).
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*Wernicke, Professor Paul. (44.) 1906. A B
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Westinghouse, Henry Herman, 2014 Trinity Bldg., New York, N. Y. (51). D
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Wheelwright, Wm. D., Portland, Oregon. (57).

WHELPLEY, HENRY MILTON, M. D., Professor of Materia Medica and Pharmacy, Washington University, St. Louis, Mo. (52). **H K**

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*Whitman, Prof. Frank P., Adelbert College, Cleveland, Ohio. (33). 1885. AB

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Wilcox, Wendell Garrett, Professor of Chemistry, Alfred University, Alfred, N. Y. (56). C

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*Wilder, Harris Hawthorne, Ph. D., Professor of Zoology, Smith College, Northampton, Mass. (52). 1905. F

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Wilkins, Miss Lewanna, Eastern High School, Washington, D. C. (52). F G

*Wilkinson, Levi Washington, Professor of Industrial and Sugar, Chemistry, Tulane University, New Orleans, La. (50). 1903. C

*Willard, Julius Terrass, Dir., Kans. State Exper. Sta., Manhattan, Kans. (50). 1906. C

Willcox, David, 20 Liberty St., New York, N. Y. (57).

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Williams, Frank Blair, Ph. D., Clark University, Worcester, Mass. (53). D
Williams, Frank H., Greene, N. Y. (50). E
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*Williams, Herbert U., M. D., Prof. of Pathology and Bacteriology, University of Buffalo, Buffalo, N. Y. (54). 1906. K
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Williams, J. C., 221 Orchard St., Ridgeway, Pa. (51). E
Williams, John T., 7 East 67th St., New York, N. Y. (57). C D
*Williams, J. Whitridge, M. D., Professor of Obstetrics, Johns Hopkins University, Baltimore, Md. (50). 1901. F K
*Williams, Leonard Worcester, Harvard Medical School, Boston, Mass. (52). 1906. F
Williams, Mabel Clare, Ph. D., Dept. of Psychology, State University of Iowa, Iowa City, Iowa. (52). H
*Williams, Stephen Riggs, Professor of Biology, Miami University, Oxford, Ohio. (50). 1906. F
*Williamson, Edward Bruce, Bluffton, Ind. (50). 1906. F
Williamson, Homer D., M. D., Bank St., Lorain, Ohio. (51). K
Williamson, Mrs. M. Burton, 136 Magnolia Ave., Hollywood, Cal. (44). F
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*Williston, Dr. Samuel W., University of Chicago, Chicago, Ill. (51). 1902. F K
*Willoughby, Charles C., Peabody Museum, Cambridge, Mass. (45). 1897. H
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*Wilson, Delonza Tate, Assistant Professor of Mathematics and Astronomy, Case School of Applied Science, Cleveland, Ohio. (53). 1906. A

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Wilson, Francis D., Prof. of Chemistry, Virginia Polythenic Inst., Blacksburg, Va. (57). C

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Wilson, Guy West, Prof. of Biology, Upper Iowa Univ., Fayette, Iowa. (58). G

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WILSON, J. HOWARD, Castine, Maine. (57). E H

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Wilson, John C., Cosmus Club, Washington, D. C. (49). I

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Woodworth, George Kean, Councillor-at-Law, Geological Museum, Cambridge, Mass. (50). D

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Wyant, Alex. L., 141 West 85th St., New York, N. Y. (57).
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Yates, J. A., State Manual Training School, Pittsburg, Kans. (50). B C G
Yates, Lorenzo Gordin, Ph. D., President, Soc. Nat. History, Santa Barbara, Cal. (54). E F G H
Yatsu, Naohidé, Zoological Institute, Imperial University, Tokyo, Japan. (56). F
*Yerkes, Robert Mearns, Instructor in Comparative Psychology, Harvard University, Cambridge, Mass. (52). 1905. K
Yothers, W. W., Orlando, Fla. (55). F
Youmans, Vincent J., 175 Elm Place, Mt. Vernon, New York. (43).
Young, Miss Anne Sewell, Mt. Holyoke College, So. Hadley, Mass. (54). A
*Young, A. V. E., Northwestern University, Evanston, Ill. (33). 1886. B C
Young, Geo. Albert, 163 Laurier Ave. West, Ottawa, Ontario, Canada. (57). E
Young, Hugh Hampton, M. D., 1005 N. Charles St., Baltimore, Md. (53). K

*Young, Stewart Woodford, Asst. Professor of Chemistry, Stanford University, Cal. (50). 1901. C

Young, Walter Douglas, E. E., B. & O. R.R. Co., 309 Oakdale Road, Roland Park, Baltimore, Md. (51). D

Zahm, George, Assistant Professor of Law, Yale University, New Haven, Conn. (53). I

*Zalinski, E. L., U.S.A., 201 East 16th St., New York, N. Y. (36). 1891. D

Zeit, P. Robert, M. D., Head of Dept. of Pathology and Bacteriology, Northwestern University Medical School, 4016 Vincennes Ave., Chicago, Ill. (58). K

*Zeleny, Anthony, Assistant Professor of Physics, University of Minnesota, Minneapolis, Minn. (56). 1908. B

*Zeleny, Charles, Indiana University, Bloomington, Ind. (53). 1905. F

*Zeleny, John, Associate Professor of Physics, University of Minnesota, Minneapolis, Minn. (50). 1901. B

*Ziwet, Alexander, 644 S. Ingalls St., Ann Arbor, Mich. (38). 1890. A

Zuber, Wm. H., Jeanette, Pa. (52). BC

INCORPORATED SCIENTIFIC BODIES.

[Holding membership under the provisions of Article 3 of the Constitution.]

Arizona, The University of, Library, Tucson, Arizona. (54).
California, The University of, Library, Berkeley, Cal. (52).
Chicago Theological Seminary Library, Miss Florence M. Freeman, Acting Librarian, 43 Warren Ave., Chicago, Ill. (58).
Cincinnati, Public Library of, Cincinnati, Ohio. (53).
Earlham College Science Club, Earlham College, Richmond, Ind. (54).
Evanston Academy of Northwestern Univ., Evanston, Ill. (58).
Georgetown University, Washington, D. C. (52).
Howard Memorial Library, New Orleans, La. (54).
Iowa State University Library, Iowa City, Iowa. (54).
Jersey City Free Public Library, Jersey City, N. J. (52).
Manchester Institute of Arts and Sciences, Manchester, N. H. (48).
Marietta College Library, Marietta, Ohio. (51).
Michigan State Normal College, Ypsilanti, Michigan. (53).
Mt. Carmel Scientific Society, Mt. Carmel, Ill. (50).
Mt. Holyoke College, Library of, South Hadley, Mass. (58).
Nebraska, The University of, Library, Lincoln, Neb. (51).
Ohio State University Library, Columbus, Ohio. (54).
Philadelphia, The Free Library of, 1217-1221 Chestnut St., Philadelphia, Pa. (51).
P. M. Musser Public Library, Muscatine, Iowa. (51).
Pratt Institute Free Library, Ryerson St., Brooklyn, N. Y. (52).
St. Francis Xavier's College, 30 W. 16th St., New York, N. Y. (52).
St. Olaf Library, Northfield, Minn. (52).
Western Illinois State Normal School, Macomb, Ill. (55).
Wilmington Institute Free Library, Wilmington, Del. (52).

SUMMARY:

Corrected to June 1, 1908.

Surviving Founders, 2; Patrons, 4; Honorary Fellows, 2; Fellows, 1,964; Members, 3,164; Total, 5,136.

NOTE.—The omission of an address in the foregoing list indicates that letters mailed to that last printed were returned as uncalled for. Information of the present address of the members indicated is requested by the PERMANENT SECRETARY.

DECEASED MEMBERS.

(A list of deceased members of the Association, so far as known at the time of publishing the volume of Proceedings of the Springfield meeting, May, 1906, is given in that volume. At the Buffalo meeting, the Council directed the Permanent Secretary to omit the printing of the full list of deceased members in the annual volumes and to print only the additions to the list. Since the publication of the list printed in the Ithaca and New York City Proceedings (Vol. 56–57), notices have been received of the decease of the following members.)

Allen, Richard H., Chatham, N. J. (49). Died January 14, 1908.

Ammons, Miss Theodosia G., State Agric. College, Fort Collins, Colo. (50). Died July 17, 1907.

Anthony, Prof. Wm. A., Cooper Union, New York, N. Y. Died May 29, 1908.

Austen, Prof. Peter T., 204 West 86th St., New York, N. Y. (44). Died December 30, 1907.

Bernays, Augustus Charles, M. D., 3623 Laclede Ave., St. Louis, Mo. (50). Died May 22, 1907.

Blair, Mrs. Eliza N., 1410 20th Street, Washington, D. C. (40). Died January, 1907.

Brodhead, Mark, 1733 19th Street, Washington, D. C. (52). Died August 4, 1906.

Cobey, W. W., U. S. Dept. Agric., Washington, D. C. (54). Died March 14, 1908.

Fort, I. A., North Platte, Neb. (51). (Notified May 2, 1908.)

Gardiner, Edward G., Ph. D., 131 Mt. Vernon St., Boston, Mass. (51). Died November 11, 1907.

Garland, Joseph E., M. D., 17 Pleasant St., Gloucester, Mass. (51). Died December 16, 1907.

Glenn, William, 1348 Block St., Baltimore, Md. (33). Died February 14, 1907.

Goddard, Clark I., D. D. S., Berkeley, Cal. (54).

Griffin, Eugene, 44 Broad Street, New York, N. Y. (50). Died April 11, 1907.

Hall, Professor Asaph, Norfolk, Conn. (25). Died November 22, 1907.

Hastings, John Walter, Cambridge, Mass. (54). Died April 26, 1908.

Heineman, Henry Newton, 409 West 59th St., New York, N. Y. (57). Died January, 1908.

Heuel, Frank, 117 West 79th St., New York, N. Y. (57). Died October 29, 1907.

Hitz, John, 1601 35th St., Washington, D. C. (52). Died March 23, 1908.

Holton, Nina Gates, U. S. Dept. Agric., Washington, D. C. (57). Died May 5, 1908.

Jesup, Morris K., 44 Pine St., New York, N. Y. (29). Died January 22, 1908.

Johnson, Willis Grant, 439 Lafayette Place, New York, N. Y. (47). Died March 11, 1908.

Kellerman, William A., Ph. D., Ohio State University, Columbus, Ohio. (41). Died March 8, 1908.

Kuhne, F. W., 723 Court St., Fort Wayne, Ind. (53). Died April 18, 1908.

Little, Henry P., Momence, Illinois. (50). Died September, 1903.

Parkhurst, Henry M., 173 Gates Ave., Brooklyn, N. Y. (23). Died January 21, 1908.

Pinchot, J. W., 1615 R. I. Avenue, Washington, D. C. (50). Died February 7, 1908.

Powell, James, 5252 Spring Grove Avenue, Cincinnati, Ohio. (51). Died February 25, 1908.

Rees, Professor John K., Columbia University, New York, N. Y. (26). Died 1907.

Stearns, Herman D., Monrovia, California. (53).

Sweat, Mrs. L. D. M., The Connecticut, Washington, D. C. (52). Died 1908.

Thompson, Millett Taylor, Ph. D., Clark University, Worcester, Mass. (51). Died August 7, 1907.

Thomson, William, M. D., 1426 Walnut St., Phila., Pa. (33). Died August 3, 1907.

Traylor, Miss Mary Clark, 600 South Grant Ave., Denver, Colo. (50).

Underwood, Lucien M., Columbia University, New York, N. Y. (33). Died 1907.

Walker, John A., Jersey City, N. J. (50). Died May 24, 1907.

Weed, Alfred, Tarrytown, N. Y. (51). Died January 12, 1907.

Yeates, William Smith, Atlanta, Georgia. (50). Died May 1, 1908.

Young, Charles A., 36 N. Main St., Hanover, New Hamsphire. (18). Died January 4, 1908.

THE FIFTY-EIGHTH MEETING

CHICAGO, ILL.

DECEMBER 30, 1907, to JANUARY 4, 1908.

ADDRESS

BY

THE RETIRING PRESIDENT OF THE ASSOCIATION.

THE INTERDEPENDENCE OF MEDICINE AND OTHER SCIENCES OF NATURE.

WILLIAM HENRY WELCH, M. D.

Science, January 10, 1908, N. S., Vol. XXVII, No. 680, pp. 49–64.

SECTION A.

Mathematics and Astronomy.

OFFICERS OF SECTION A

Vice-President and Chairman of the Section.

E. O. LOVETT, Princeton.

Secretary.

GEORGE A. MILLER, Urbana.

Member of Council.

G. B. HALSTED, Colorado.

Sectional Committee.

EDWARD KASNER, Vice-President, 1907; E. O. LOVETT, Vice-President, 1908; G. A. MILLER, Secretary.
ORMOND STONE, 1 year; E. B. FROST, 2 years; E. O. LOVETT, 3 years; HARRIS HANCOCK, 4 years; E. W. BROWN, 5 years.

Member of General Committee.

F. R. MOULTON, Chicago.

ADDRESSES AND PAPERS PRESENTED.

Geometry and Mechanics.
Address by EDWARD KASNER, Columbia University, Vice-President and Chairman of Section A for 1907.
(Will appear in *Science*.)

Observations with the Bruce Spectrograph. (With lantern.)
EDWIN B. FROST, Yerkes Observatory.
Astrophysical Journal.

Comments on the Zeiss Stereocomparator and the Spectrocomparator Belonging to Yerkes Observatory. (With lantern.)
EDWIN B. FROST.
Director's Report, Yerkes Observatory.

Photographic Phenomena of Comet d 1907. (Daniel.) (With lantern.)
E. E. BARNARD, Yerkes Observatory.

On a Great Bed of Nebulosity in Sagittarius, Photographed with the Bruce Telescope of the Yerkes Observatory. (With lantern.)
E. E. BARNARD.
Astronomische Nachrichten.

Note on the Problem of Three Bodies.
E. O. LOVETT, Princeton University.
American Journal of Mathematics. (Baltimore.)

The Light Curve of Delta Cephei. (With lantern.)
JOEL STEBBINS, University of Illinois.
Astrophysical Journal, April, 1908.

An Application of the Selenium Cell to Astronomical Photometry. (With lantern.)

JOEL STEBBINS and F. C. BROWN.

Astrophysical Journal, December, 1907–March, 1908.

Observations and Explanation of the Phenomena Seen at the Disappearances of the Rings of Saturn. (With lantern.)

E. E. BARNARD, Yerkes Observatory.

Astrophysical Journal, Vol. XXVII, No. 1, January, 1908.

On the Twenty-foot Horizontal Solar Spectrograph of the Yerkes Observatory. (With lantern.)

EDWIN B. FROST and PHILIP FOX.

Director's Report, Yerkes Observatory.

A Graphic Method for the Determination of the Orbit of a Spectroscopic Binary.

KURT LAVES, The University of Chicago. (Introduced by Edwin B. Frost.)

New Tables for the Time of Sight Correction of the Earth's Orbital Motion.

KURT LAVES.

A Generalized Theory of Integral Equations.

W. D. CAIRNS, Oberlin College.

On the Theory of Order, Static and Nascent.

G. B. HALSTED, Greeley, Colo.

"On the Foundations and Technique of Arithmetic."

Singular Points in the Approximate Development of the Perturbative Function.

F. W. REED, University of Illinois.

On a Certain Class of Algebraic Translation-Surfaces.
JOHN EISLAND, University of West Virginia.
American Journal of Mathematics. (Baltimore.)

Matrices Not Belonging to Groups.
ARTHUR RANUM, Cornell University.

A Note on Interest on Reserve from Items Computed for the Uniform Report Blank.
C. H. BECKETT, Purdue University.
Bulletin of the American Mathematical Society, Vol. 14, No. 6.

On Asymptotic Isothermic Surfaces.
A. E. YOUNG, Purdue University.
Transactions of American Mathematical Society.

Some Questionable Terms and Definitions Used in Elementary Mathematics.
G. A. MILLER, University of Illinois.
School of Science and Mathematics, April, 1908.

The Photographic Determination of Star-Colors and Their Relation to Spectral Type. (With lantern.)
J. A. PARKHURST and F. C. JORDAN, Yerkes Observatory.
Astrophysical Journal, April, 1908.

On the Detection of the Eruptive Prominences on the Solar Disk. (With lantern.)
PHILIP FOX, Yerkes Observatory.
Astrophysical Journal, Vol. XXVII.

An Investigation of the 40-inch Objective at the Yerkes Observatory. (With diagram.)
PHILIP FOX.
Astrophysical Journal, Vol. XXVII, March, 1908.

The Function of a Color Filter and of Certain Plates in Astronomical Photography.

R. J. WALLACE, Yerkes Observatory. (Introduced by Edwin B. Frost.)

Astrophysical Journal, Vol. XXVII, March, 1908.

The Vertical Coelostat or "Tower" Telescope of the Mt. Wilson Solar Observatory.

G. E. HALE.

Preliminary Results of a Comparative Study of the Spectra of the Limb and the Center of the Sun.

G. E. HALE and W. S. ADAMS.

A Simple Method for Reducing Spectrograms.

FRANK SCHLESINGER.

On the Probability of the Near Approach of Two Stars and on Relative Problems in the Sidereal Universe.

F. R. MOULTON.

SECTION B.

PHYSICS.

OFFICERS OF SECTION B.

Vice-President and Chairman of the Section.

D. C. MILLER, Cleveland.

Secretary.

A. D. COLE, Poughkeepsie.

Member of Council.

E. F. NICHOLS.

Sectional Committee.

W. C. SABINE, Vice-President, 1907; D. C. MILLER, Vice-President, 1908; A. D. COLE, Secretary.
GORDON F. HULL, 1 year; F. E. NIPHER, 2 years; E. L. NICHOLS, 3 years; A. TROWBRIDGE, 4 years; E. B. ROSA, 5 years.

Member of General Committee.

H. S. CARHART.

ADDRESSES AND PAPERS PRESENTED.

Melody and the Origin of the Musical Scale.
Address by Prof. WALLACE C. SABINE, Harvard University, Vice-President and Chairman of Section B for 1907.
Science May 29, 1908, N. S., Vol. XXVII, No. 700, pp. 841–847.

The Discharge of Electricity from Pointed Conductors.
JOHN ZELENY, University of Minnesota.
The Physical Review.

Notes on Spark Potentials.
R. F. EARHART, Ohio State University.

The Influence of Humidity upon the Electrical Discharge from Points in Air.
JOHN ZELENY, University of Minnesota.
The Physical Review.

Radioactivity of a Smoke-laden Atmosphere.
S. J. ALLEN, University of Cincinnati.
The Physical Review.

On the Value of the Charges Carried by the Negative Ion of Ionized Gases.
R. A. MILLIKAN and L. BEGEMAN, The University of Chicago.
Physical Review, Vol. XXVI, p. 192.

The Distribution of Ionizing Energy about an X-ray Tube in Action.
W. R. HAM, The University of Chicago.

The Velocity of the Negative Ions Produced by the Ultra-violet Rays.
ALOIS F. KOVARIK, University of Minnesota.

Absorption Spectra of Roentgen Rays, Measured by a Radiometer.
J. M. ADAMS, Harvard University.
Physical Review, Feb., 1908.

A Mechanical Effect accompanying Magnetization.
O. W. RICHARDSON, Princeton University.

Ionization of Gases at High Pressures.
HENRY A. ERIKSON, University of Minnesota.
Abstract in Physical Review, Feb., 1908.

The Variation of Apparent Capacity of a Condenser with the Time of Discharge and the Variation of the Capacity with Frequency in Alternating Current Measurements.
BRUCE V. HILL, University of Kansas.
Physical Review.

An Examination of Certain Alternating-Current Circuits, including those Containing Distributed Capacity.
CARL KINSLEY, The University of Chicago.

The Capacity of Paper Condensers and Telephone Cables.
ANTHONY ZELENY and A. P. ANDREWS, University of Minnesota.
The Physical Review.

A Hydrogen Peroxide Cell.
H. T. BARNES and G. W. SHEARER, McGill University, Montreal.
Journal of Physical Chemistry, Feb. 29, 1908.

The Heat of Dilution of Aqueous Salt Solutions.
F. L. BISHOP.

Determination of the Fusion Points of Sodium Nitrate and Potassium Nitrate.
FLOYD R. WATSON, University of Illinois.
Physical Review, Vol. XXVI, p. 198, February, 1908.

A New Apparatus for Measuring Electrolytic Resistance.
ARTHUR W. SMITH, University of Michigan.
Abstract in *Science*, N. S. Vol. XXVII, No. 693, April 10, 1908.

Heat of Evaporation of Water.
A. W. SMITH, University of Michigan.
Monthly Weather Review, October, 1907.

A Galvanometer Scale or the Direct Reading of Temperatures with Thermo-electric Couples.
ANTHONY ZELENY, University of Minnesota.
Physical Review.

The Use of the Bunsen Ice Calorimeter for Accurate Heat Measurements.
H. T. BARNES and F. H. DAY, McGill University, Montreal.
Physical Review.

The Resistance Temperature Coefficient and the Coefficient of Expansion of Carbon.
G. W. STEWART, University of North Dakota.
Abstract in Physical Review.

The Temperature Coefficient of the Moving Coil Galvanometer.
A. ZELENY and O. HOVDA, University of Minnesota.
Physical Review.

The Effect of Tension on Thermal and Electrical Conductivity.
N. F. SMITH, Olivet College, Mich.
Abstract in February Physical Review.

Some Cases of Excessive Damping of Torsional Vibrations.
K. E. GUTHE, Iowa State University.
Physical Review, February, 1908.

A Relation of Mass to Energy.
DANIEL F. COMSTOCK, Ph. D.

Method of Determining the Modulus of Bending of a Flat Spring.
R. S. WOODWARD, Carnegie Institution, Washington.

An Investigation of the Optical Properties of Films of Magnetic Metals.
C. A. SKINNER and A. Q. TOOL, University of Nebraska.
Philosophical Magazine.

The Electric Double Refraction of Carbon Bisulphide.
CHARLES F. HAGENOW, Armour Institute, Chicago.

The Spectrum of Calcium.
JAMES P. BARNES, Bryn Mawr College.
Astrophysical Journal, March, 1908.

Upon the Magnetic Separation of the Spectral Lines of Barium, Yttrium, Zirconium, and Osmium.
B. E. MOORE, University of Nebraska.
Astrophysical Journal, and Physical Review.

On the Absorption of Short Electric Waves by Air at Different Pressures.
JAMES E. IVES and ROBERT E. CLYDE GOWDY, University of Cincinnati.
Physical Review, February, 1908.

The Magnetic Properties of Antimony.
ARTHUR L. FOLEY, Indiana University.

A Repetition of Wheatstone's Experiment of 1834.
FRANCIS E. NIPHER, Washington University, St. Louis.

The Susceptibility of Copper and Tin and Their Alloys.
O. C. CLIFFORD, The University of Chicago.
Physical Review.

A Satisfactory Form of High Resistance.
G. W. STEWART, University of North Dakota.
Physical Review.

Phonographic Record of the Doppler Effect.
CHAS. T. KNIPP, University of Illinois.
Physical Review, February, 1908.

How Does the Violinist Control the Loudness of his Tone?
HARVEY N. DAVIS, Harvard University.

A Wave Machine Showing Damped or Undamped Compound Waves.
ALBERT B. PORTER, Chicago.

Notes on Harmonic Analysis.
ALBERT B. PORTER, Chicago.

Some Experiments on the Radioactivity of Potassium Salts.
J. C. McLennan, University of Toronto.

On Variations in the Penetrating Radiation from the Earth.
C. S. Wright, University of Toronto.
(Communicated by Prof. J. C. McLennan.)

A Null-reading Instrument for the Measurement of Ionization.
S. J. Allen, University of Cincinnati.
Philosophical Magazine, London, December, 1907.

A Comparison of the Formulas of Helmholtz and Nernst for the Electromotive Force of Concentration Cells.
Henry S. Carhart, University of Michigan.
Physical Review, probably March, 1908.

The Stability of Cadmium Cells.
Henry S. Carhart, University of Michigan.
Physical Review, January, 1908.

On the Separation of Echelon Spectra by Gratings.
A. A. Michelson, The University of Chicago.

Selective Reflection as a Function of the Atomic Weight of the Base.
W. W. Coblentz, Bureau of Standards, Washington.
Physical Review, March, 1908.

The Infra-red Absorption of Certain Biaxial Crystals for the Three Principal Directions of Vibration.
R. E. Nyswander, Cornell University.
Physical Review.

New Physical Aids to Navigation.
H. E. WETHERILL, Philadelphia.
Proceedings, Franklin Institute, Philadelphia.

The Distribution of Energy in the Spectrum of the Tungsten Filament.
R. E. NYSWANDER, Cornell University.
Physical Review.

The Use of Complex Quantities in Alternating Currents.
G. W. PATTERSON, University of Michigan.
Physical Review, probably March, 1908

Physical Research at a Mountain Observatory.
G. E. HALE, Mt. Wilson Observatory.

Some Curious High-temperature Phenomena.
C. E. MENDENHALL, University of Wisconsin.

SECTION C.

CHEMISTRY.

OFFICERS OF SECTION C.

Vice-President and Chairman of the Section.
H. P. TALBOT, Boston.

Secretary.
CHAS. L. PARSONS, Durham, N. H.

Member of Council.
(————.)

Sectional Committee.
CLIFFORD RICHARDSON, Vice-President, 1907; H. P. TALBOT, Vice-President, 1908; CHAS. L. PARSONS, Secretary, 1904–1908.
L. KAHLENBERG, 1 year; G. B. FRANKFORTER, 2 years; WILLIAM McPHERSON, 3 years; W. J. GIES, 4 years; L. P. KINNICUTT, 5 years.

Member of General Committee.
(————.)

Press Secretary.
B. E. CURRY.

AMERICAN CHEMICAL SOCIETY.

President.
MARSTON T. BOGERT, New York.

Secretary.
CHARLES L. PARSONS, Durham, N. H.

Editor.
W. A. NOYES.

Treasurer.
A. P. HALLOCK.

Librarian.
E. G. LOVE.

ADDRESSES AND PAPERS PRESENTED.

GENERAL SESSION.

A Plea for the Broader Education of the Chemical Engineer.
Address by CLIFFORD RICHARDSON, Vice-President and Chairman of Section C for 1907.
Science, N. S., Vol. XXVII, No. 681, January 17, 1908, page 81.

The Application of Physical Chemistry to Organic Chemistry.
JULIUS STEIGLITZ.
Science.

The Hydronitrogens and Their Derivatives.
A. W. BROWNE.

Some Present-Day Problems of Biological Chemists.
R. H. CHITTENDEN.
Science, February 14, 1908.

The Passage of Substances into the Human System by Osmosis.
LOUIS KAHLENBERG.
Journal of Physical Chemistry.

American Chemical Societies.
M. T. BOGERT.
Journal, American Chemical Society, 30, 163–82.

The Non-Equivalence of the Four Valences of the Carbon Atom.
J. U. NEFF.
Journal, American Chemical Society, April, 1908.

The Chemical Education of the Chemical Engineer.
WM. H. ELLIS.
Science, June 5, 1908, pp. 882–885.

Chemistry in the Government Service.
W. D. BIGELOW.
Science, N. S., Vol. XXVII, No. 691, March 27, 1908, page 481.

The Interrelations of the Elements.
HERBERT N. MCCOY.

PHYSICAL CHEMISTRY SECTION.

HERBERT N. MCCOY, *Chairman*.

On the Refractive Indices of Absolute and of Aqueous Alcohol.
LAUNCELOT ANDREWS.

On the Refractive Indices of Ether-Alcohol Mixtures.
LAUNCELOT ANDREWS.

The Latent Heat of Vaporization of Methyl Silicate.
LOUIS KAHLENBERG and ROBERT KOENIG.
Journal of Physical Chemistry.

Equilibrium in the System Silver Nitrate and Pyridine.
LOUIS KAHLENBERG and ROBERT K. BREWER.
Journal of Physical Chemistry.

Note on the Solubility Product.
JULIUS STEIGLITZ.
Journal, American Chemical Society.

Two New Methods of Determining the Secondary Ionization Constants of Dibasic Acid.
HERBERT N. MCCOY.

The Preparation of Urano-uranic Oxide and a Standard of Radioactivity.
GEORGE C. ASHMAN and HERBERT N. MCCOY.

The Three Component System—CuO, SO_3, H_2O at 25 Degrees.
J. M. BELL and W. C. TABER.

The Action of Nitric and Citric Acid Solutions upon Ferric Hydroxide.
F. K. CAMERON and W. O. ROBINSON.

The Rate of Diffusion of Oxygen through Organic Liquids.
G. B. FRANKFORTER and G. W. WALKER.
Journal, American Chemical Society.

The Casting of Zinc.
W. D. BANCROFT. (Reported by title.)

Solution in a Dissolved Solid.
CHARLES L. PARSONS. (Reported by title.)
Journal of Physical Chemistry, December, 1907.

Reversed Electrolysis.
J. W. TURRENTINE. (Reported by title.)
Journal of Physical Chemistry.

Principles Involved in the Construction of College Laboratories
CHARLES BASKERVILLE. (Reported by title.)

The Heat of Ionization and the Reversible Potential of Nickel.
E. P. SCHOCH. (Reported by title.)

AGRICULTURAL, SANITARY AND FOOD CHEMISTRY SECTION.

W. D. BIGELOW, *Chairman.*

Determination of Sulphites in Food Products.
EDWARD GUDEMAN.
Abstract in *Science*, February 21, 1908, page 294.

Natural and Modified Starches; An Introduction to a Comparative Study of their Physical and Chemical Properties.
CHESTER B. DURYEA.

Note on the Dyer Method for the Determining of Plant Food in Soils.
FRANK T. SHUTT and A. T. CHARRON.
Journal, American Chemical Society, June, 1908.

A Recent Analysis of Water from Great Salt Lake.
W. C. EBAUGH and KENNETH WILLIAMS.
Abstract in *Science*.

The Precipitation Method for the Estimation of Oils in Flavoring Extracts and Pharmaceutical Preparations.
CHARLES D. HOWARD.

Effect of Lime and Gypsum on the Solubility of Potassium in Feldspars.
F. W. MORSE and B. E. CURRY.

A Study of the Changes Taking Place in the Muscle of Chickens when Preserved at Low Temperatures.
M. E. PENNINGTON and E. Q. ST. JOHN, Food Research Laboratory.

Methods of Soil Toxicology.
OSWALD SCHREINER and EDMUND C. SHOREY.

Nitrates as Soil Renovators.
OSWALD SCHREINER AND HOWARD S. REED.

The Proteids of Cotton.
H. C. WHITE.
Abstract in *Science*, February 21, 1908.

The Volatilization of Certain Mineral Elements in Ashing Plant Materials
W. W. SKINNER, U. S. Department of Agriculture.

The Occurrence of Copper in Oysters.
J. T. WILLARD.
Journal, American Chemical Society.

Influence of Fertilizers upon the Composition of Wheat.
HARRY SNYDER.
Journal, American Chemical Society.

The Detection of Formic Acid in Food Products.
A. G. WOODMAN and ALBERT L. BURWELL.

An Electrically Heated Polariscopic Tube.
B. H. SMITH.

The Effect of Temperature on the Respiration of Apples.
FRED. W. MORSE.
Journal, American Chemical Society.

Some Notes on Soil Acidity.
FRED. W. MORSE and B. E. CURRY.

The Relation between the Effects of Acid in Nutrient Solutions, and of Liming.
BURT L. HARTWELL and F. R. PEMBER.
Rhode Island Agricultural Experiment Station, Annual Report, 20 (1907) 299–357, 358–380.

The Partial Substitution of Potassium by Sodium as a Plant Food.
B. L. HARTWELL, H. J. WHEELER and F. R. PEMBER.

A Study of the Chemistry of the Chinese Edible Bird's Nest "Neossin."
E. V. MCCOLLUM.

The Importance of the Publication of a General Bulletin giving the Results of Food and Drug Work in the United States.
E. H. S. BAILEY and H. L. JACKSON.
American Food Journal, Vol. III, No. 1, p. 2.

Extracting Sugar from Dried Beet Cosettes.
HARRY MCCORMACK.

Analyses of Grains and their Comparative Value for Feeding Purposes.
JOSEPH S. CHAMBERLAIN. (Reported by title.)

Changes taking Place in Whiskey stored in Wood.
C. A. CRAMPTON and L. M. TOLMAN. (Reported by title.)
Journal, American Chemical Society, 1908, 30-98-136.

Detection of Thickeners in Ice-cream.
G. E. PATRICK. (Reported by title.)
American Food Journal, Chicago, February 15, 1908.

INORGANIC CHEMISTRY SECTION.

A. W. BROWN, *Chairman.*

Rapid Electroanalysis without Rotating Electrodes.
FRANCIS C. FRARY.

A Gas Volumeter with Table of Calculated Values for Carbon Dioxide
S. W. PARR.

Atomic Weight of Chlorine.
WM. A. NOYES and H. C. P. WEBER.
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An Yttrium Group Separation Method.
BENTON DALES and H. D. YOUNG.

Sodium Peroxide in Certain Quantitative Processes.
S. W. PARR.
Journal, American Chemical Society, May, 1908.

The Decomposition of Ores and Metallurgical Products by Means of Sodium Peroxide and Certain Metallic Sulphides.
J. H. WALTON, Jr., and A. SCHOLZ.

The Occurrence of Neon in Natural Gas.
H. P. CADY and D. F. McFARLAND.

A Discussion of Methods in use for Separations in the Group and a Description of a New Method of Separating these Earths by Use of their Succinates.
V. LENHER.
Journal, American Chemical Society, April, 1908.

Dilution of the Strong Acids and of Ammonium Hydroxide.
C. W. FOULK and H. E. SURFACE.
Journal, American Chemical Society.

The Character of the Compound formed by the Addition of Ammonia to Ethylphosphoplatina Chloride (second contribution).
CHARLES H. HERTY and R. O. E. DAVIS.
Journal, American Chemical Society.

The Influence of Temperature on the Electrolytic Precipitation of Copper from Nitric Acid.
JAMES R. WITHROW.

Action of Certain Oxidizing Agents upon Hydrazine Sulphate.
F. F. SHETERLY. (Reported by title.)

The Electrolytic Formation of Selenic Acid from Lead Selenate
F. C. MATHERS. (Reported by title.)

The Reaction Produced by Heat upon a Mixture of Ammonium Chloride and Potassium Bichromate.
G. B. FRANKFORTER, E. V. MANUEL and V. H. ROEHRICH. (Reported by title.)
Journal, American Chemical Society.

Action of Water on Galvanized Iron.
W. F. MONTFORD. (Reported by title.)
Journal, American Chemical Society.

The Preparation of Silicon Tetrachloride.
CHARLES R. SANGER. (Reported by title.)

The Preparation and Properties of Pyrosulphol Chloride and Chlorosulphonic Acid.
CHARLES R. SANGER. (Reported by title.)

Recent Improvements in the Determination of Small Amounts of Arsenic and Antimony.
CHARLES R. SANGER. (Reported by title.)

The Determination of Small Amounts of Fluorine.
CHARLES R. SANGER.

Sodium Alum.
W. R. SMITH. (Reported by title.)

Some New Compounds of Hydrazine.
J. W. TURRENTINE. (Reported by title.)

Fractionation of the Yttrium Earths.
R. D. HALL. (Reported by title.)

The Rare Earth Bromates—A New Method of Separation of the Yttrium Earths.
CHARLES JAMES. (Reported by title.)

A Scheme for the Separation of the Rare Earths.
CHARLES JAMES. (Reported by title.)

A Study of Graphitic Acid.
G. B. FRANKFORTER and LILLIAN COHEN. (Reported by title.)
Journal, American Chemical Society.

ORGANIC CHEMISTRY SECTION.

JULIUS STIEGLITZ, *Chairman.*

Stereoisomeric Chlorimido Esters.
W. S. HILPERT.

The Applications of Physical Chemistry to Organic Chemistry.
JULIUS STIEGLITZ.

The Condensation of Nitromalonic Aldehyde with Acetonyl Acetone.
W. J. HALE.
Science, N. S., XXVII, 322; also Journal, American Chemical Society.

The Conversion of Nitromethane into Fulminates.
LAUDER WILLIAM JONES.

The Asymmetric Methyl Dialkylisoureas.
RALPH H. MCKEE, Lake Forest University.
Journal, American Chemical Society.

Melting Points of Binary Mixtures of Ortho-Meta and Paranitranaline—A New Method for the Determination of these Compounds.
J. BISHOP TINGLE and H. F. ROLKER.
Journal, American Chemical Society.

Intramolecular Condensation in the Phthalanilic Acid Series.
J. BISHOP TINGLE and H. F. ROLKER.
Journal, American Chemical Society.

The Clarsen Reaction.
J. BISHOP TINGLE and ERNEST E. GORSLINE.
Journal, American Chemical Society.

Action of Amines on Ethyl Camphoroxalate.
J. BISHOP TINGLE and L. F. WILLIAMS.
Journal, American Chemical Society.

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JULIUS STIEGLITZ.
Journal, American Chemical Society.

The Oxidation of M-Nitrobenzoylcarbinol.
WM. L. EVANS and BENJ. T. BROOKS.
Journal, American Chemical Society, Vol. 30, page 404.

A Chemical Study of a Number of the Wild Fruits from Sylvan Beach, N. Y.
NICHOLAS KNIGHT.

Bromination of Phenyl and Tolyl Ethers.
ALFRED N. COOK.

Mesoxalic Esters and their Reaction with Hydrazin.
RICHARD S. CURTISS and P. T. TARNOWSKI.
Journal, American Chemical Society, 1908.

Nitrosomalonic Esters.
RICHARD S. CURTISS.
Journal, American Chemical Society, 1908.

A Peculiar Decomposition of the Esters of Formylchloridoxime.
H. C. BIDDLE.

The Constitution of Indigos and Related Compounds.
M. T. BOGERT, K. G. FOLK and J. M. NELSON.
Journal, American Chemical Society, 30, 143.

Phenylmalonic Nitrile.
JOHN C. HESSLER.

The Catalysis of Imido Esters by Alkalies.
HERMAN I. SCHLESINGER.

The Action of the Alkalies on the Carbohydrates.
J. U. NEFF. (Reported by title.)
Liebig's Annalen der Chemic, Vol. 357, pages 294–312.

Marrubiin.
H. M. GORDIN.
Journal American Chemical Society, Vol. XXX, No. 2, February, 1908.

Imido-hydrantoine.
JAMES B. GARNER. (Reported by title.)
Journal, American Chemical Society.

On the Salts of Tautomeric Compounds.
S. F. ACREE, R. F. BRUNEL, J. M. JOHNSON, G. H. SHADINGER and SIDNEY NIRDLINGER. (Reported by title.)

The Hydrocarbons in the Lignites of the Northwest.
G. B. FRANKFORTER. (Reported by title.)
Journal, American Chemical Society.

Some Halides of Pinene.
G. B. FRANKFORTER and WALTER BADGER. (Reported by title.)

INDUSTRIAL CHEMISTRY SECTION.

W. H. ELLIS, *Chairman.*

The Use of Carbon Tetrachloride as an Extractive in Commercial Analyses of Cotton-seed Meal.
CHARLES H. HERTY and F. B. STEM.
Journal, American Chemical Society.

The Volatile Oils of Pinus taeda and of Pinus echinata.
CHARLES H. HERTY and W. S. DICKSON.
Journal, American Chemical Society.

A New Oxidizing Medium and its Function in the Blood and Muscle Elements.
J. E. SIEBEL.

Wood Turpentines and their Relation to Gum Turpentines.
W. C. GEER. (Reported by title.)

The Deposition of Arsenic upon the Vegetation of Smelter Regions.
W. D. HARKINS. (Reported by title.)

Determination of Small Quantities of Monocarbonate in Bicarbonate of Soda.
J. D. PENNOCK and D. A. MORTON.

The Criteria of Deterioration in Flesh Foods.
W. D. RICHARDSON. (Reported by title.)
Journal, American Chemical Society, 1908.

Transparent Soap: A Supercooled Solution.
W. D. RICHARDSON. (Reported by title.)
Journal, American Chemical Society, March, 1908.

Examination of Crude Petroleum for Comparative Purposes.
DAVID T. DAY. (Reported by title.)

Long-leaf Pine Oil.
J. E. TEEPLE. (Reported by title.)
Journal, American Chemical Society, Vol. XXX, No. 3, p. 412.

Microscopic Detection of Free Magnesia in Portland Cement.
ALFRED H. WHITE. (Reported by title.)

Analysis of Turpentine by Fractional Distillation with Steam.
W. C. GEER. (Reported by title.)

BIOLOGICAL CHEMISTRY SECTION IN JOINT SESSION WITH AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS.

R. H. CHITTENDEN, *Chairman and President.*

Organic Soil Constituents.
OSWALD SCHREINER and EDMUND C. SHOREY.

Toxic Substances Arising During Plant Metabolism.
OSWALD SCHREINER and M. X. SULLIVAN.

The Chemical and the Physiological Properties of a Solution of Hydro chloric Acid and Sodium Chloride.
AMOS W. PETERS.

The Endo- and Ekto-invertase of the Date.
A. E. VINSON.

On the Occurrence of a Phytin-splitting Enzyme in Animal Tissues.
E. V. MCCULLOM and E. B. HART, Chemical Laboratory of the Wisconsin Experiment Station.

Bacterial Growth and Chemical Changes in Milk kept at Low Temperatures.
M. E. PENNINGTON, U. S. Department of Agriculture, Bureau of Chemistry.
Journal of Biological Chemistry, probably the April number, 1908.

A Demonstration of a Method (with apparatus) of showing the Electric Charge of Colloids.
A. B. MCCALLUM. (Reported by title.)

On the Action of Nitric Acid on Nucleic Acids.
WALTER JONES. (Reported by title.)

The Probability of a Radiotropic Response.
C. STUART GAGER. (Reported by title.)
Journal, Biological Chemistry, Vol. 4, March, 1908, and in Proceedings, Society Biological Chemists, No. 3, 1908.

Glycocoll as a Product of Uricolysis.
LYMAN B. STOOKEY. (Reported by title.)
Proceedings of the Society for Experimental Biology and Medicine.

A Study of the Influence of Potassium Cyanide on the Excretion of Nitrogenous Substances in the Urine of Dogs.
WILLIAM H. WALKER. (Reported by title.)

SECTION D.

Mechanical Science and Engineering.

OFFICERS OF SECTION D.

Vice-President and Chairman of the Section.

O. H. LANDRETH, Schenectady.

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Sectional Committee.

W. R. WARNER, Vice-President, 1907; O. H. LANDRETH, Vice-President, 1908; WM. T. MAGRUDER, Secretary, 1904–8
H. T. EDDY, 1 year; WILLIAM KENT, 2 years; A. M. GREENE, Jr., 3 years; J. B. WEBB, 4 years; J. E. BOYD, 5 years.

Member of General Committee.

(————.)

[There was no vice-presidential address before this section.]

PAPERS READ.

Experiments with Tar and Oil on the Highways of Rhode Island.
ARTHUR H. BLANCHARD, Associate Professor of Civil Engineering, Brown University, Providence, R. I.

A Pressure-Temperature Diagram of the Properties of Superheated Steam.
HENRY T. EDDY, Professor of Mathematics and Mechanics, College of Engineering, University of Minnesota, Minneapolis, Minn.

The Use of Arrow-Heads in Alternating Current Vector Diagrams.
A. S. LANGSDORF, Professor of Electrical Engineering, Washington University, St. Louis, Mo.

Military Aeronautics.
GEORGE O. SQUIER, Major, Signal Corps, U. S. Army, Ft. Leavenworth, Kans.

On the Mechanical and Other Appliances of the Compound Air-Tanks Equipped at Cerro de Pasco, Peru, at 14,000 feet Elevation, for the Relief and Prevention of Mountain Sickness.
DAVID TODD, Director of the Amherst College Observatory, Amherst, Mass.

An Instrument for Investigating the Circulation in Water-Tube Boilers.
FRANK C. WAGNER, Rose Polytechnic Institute, Terre Haute, Ind.

Drainage as Related to Mosquito Extermination.
HENRY CLAY WEEKS, Bayside, Long Island, N. Y.

A Note on the Shearing Stresses in Beams.

CALVIN M. WOODWARD, Professor of Mathematics and Applied Mechanics, Washington University, St. Louis, Mo.

The Problem of Power for Airships.

CALVIN M. WOODWARD, Professor of Mathematics and Applied Mechanics, Washington University, St. Louis, Mo.

Segregation in Steel Ingots.

HENRY M. HOWE, Professor of Metallurgy, Columbia University, New York, N. Y.

JOINT SESSION WITH SECTION A, MATHEMATICS AND ASTRONOMY, AND WITH THE CHICAGO SECTION OF THE AMERICAN MATHEMATICAL SOCIETY.

Engineering-Mathematics Symposium.

The Present Status of the Teaching of Mathematics to Engineering Students.

(*a*) In this Country—Professor EDGAR J. TOWNSEND, University of Illinois, Champaign, Ill.

(*b*) In Foreign Countries—Professor ALEXANDER ZIWET, University of Michigan, Ann Arbor, Mich.

Address by President ROBERT S. WOODWARD, Carnegie Institution, Washington, D. C.

Address by Mr. CHARLES F. SCOTT, Westinghouse Electric and Manufacturing Co., Pittsburg, Pa.

What is Needed in the Teaching of Mathematics to Students of Engineering?

(*a*) Range of Subjects.

(*b*) Extent in the Various Subjects.

(*c*) Methods of Presentation.

(*d*) Chief Aims.

Discussed as follows:

From the Standpoint of the Practicing Engineer, by:

CHARLES P. STEINMETZ, Consulting Electrical Engineer, General Electric Company Schenectady, N. Y.

RALPH MODJESKI, Consulting Civil Engineer, Chicago, Ill.

W. L. ABBOTT, Chief Operating Engineer, Chicago Edison Company, Chicago, Ill.

J. A. L. WADDELL, Consulting Bridge Engineer, Kansas City, Mo.

From the Standpoint of the Professor of Engineering, by:

GARDNER S. WILLIAMS, Professor of Civil, Hydraulic, and Sanitary Engineering, University of Michigan, Ann Arbor, Mich.

ARTHUR N. TALBOT, Professor of Municipal and Sanitary Engineering, University of Illinois, Urbana, Ill.

From the Standpoint of the Professor of Mathematics in the Engineering College, by:

CHARLES S. SLICHTER, Professor of Applied Mathematics, University of Wisconsin, Madison, Wis.

FREDERICK S. WOODS, Professor of Mathematics, Massachusetts Institute of Technology, Boston, Mass.

FRED W. MCNAIR, President, Michigan College of Mines, Houghton, Mich.

SECTION E.

Geology and Geography.

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F. P. GULLIVER, Norwich.

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WM. H. HOBBS, Madison.

Sectional Committee.

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Member of General Committee.

W. H. HOBBS.

ADDRESSES AND PAPERS READ.

The Early Surroundings of Life.
Address by A. C. LANE, Vice-President and Chairman of Section E.
Dr. Lane's address was read at the summer meeting of the Section and appears in *Science*, August 2, 1907, pp. 129–143.

[For detail of proceedings of above special summer meeting of Section E, see *Science*, September 27, 1907, N. S., Vol. XXVI, No. 665, pp. 397–404.]

The Red Sandstone Series of Southeastern Minnesota.
C. W. HALL.
Bulletin, Geological Society of America.

Preliminary Account of the Geology of the Highlands of New Jersey.
W. S. BAYLEY.

Petroleum Fields of Illinois in 1907.
H. FOSTER BAIN, Director of the Geological Survey, Urbana, Illinois.

General Petrology of Wisconsin Igneous Rocks.
S. WEIDMAN, Madison, Wis.

Geology and Mining Industry of Chihuahua, Mexico.
RUFUS M. BAGG, Jr., Urbana, Ill.

Niagaran and Oriskanian in the Western Part of Virginia.
E. B. BRANSON, Oberlin, Ohio. (Read by title.)

The Earthquake of 1872 in the Owens Valley, California.
WILLARD D. JOHNSON, Washington, and W. H. HOBBS, Ann Arbor, Mich. (Read by W. H. Hobbs.)

A Design for a Universal Seismograph with Duplex Recorders for Horizontal Motion.
C. F. MARVIN, U. S. Weather Bureau, Washington, D. C.

Report of Seismological Committee of the International Seismological Association.
H. F. REID, Baltimore, Maryland, Chairman. (Read by Dr. Otto Klotz, Ottawa, Canada.)

A Reconstruction of the Water Planes of the Extinct Glacial Great Lakes in the Lake Michigan Basin.
J. W. GOLDTHWAIT, Evanston, Ill.

Earth Movements in the Laurentian Basin Since its Occupation by the Ice.
WILLIAM HERBERT HOBBS, Ann Arbor, Mich.

A Review of the Great Lakes History, with Special Reference to the Deformation of the Ancient Water Planes.
FRANK B. TAYLOR, Fort Wayne, Ind.
Journal of Geology.

The Mississippian Section in Illinois.
STUART WELLER, Chicago, Ill.

Devonic Elements in the Late Siluric Fauna of Southern Michigan.
A. W. GRABAU, New York, and W. H. SHERZER, Ypsilanti, Mich. (Read by W. H. Sherzer.)

Notes on the Traverse Group of Michigan.
A. W. GRABAU, New York City. (Read by W. H. Sherzer, Ypsilanti, Mich.)

The Evolution and Distribution of the Pleisosaurs.
S. W. WILLISTON, Chicago, Ill.

On the Discovery of Vertebrate Fossils in the Pennsylvanian, near Pittsburg, Pa.
PERCY E. RAYMOND, Pittsburg, Pa.

On the Discovery of Pelycosaurian Remains in Rocks of Pennsylvanian Age near Pittsburg, Pa.
E. C. CASE, Ann Arbor, Mich. (Read by title.)

The Lignite of Mississippi.
CALVIN S. BROWN, University Postoffice, Mississippi.

The Influence of the Tides on the Earth's Rotation.
T. C. CHAMBERLIN, Chicago, Ill.
Publications of Carnegie Institution.

Glacial Erosion in Wales.
W. M. DAVIS, Cambridge, Mass.

Beginning and Recession of Saint Anthony's Falls.
F. W. SARDESON, Minneapolis, Minn.

Arched Structure in Lockport Limestone.
H. L. FAIRCHILD, Rochester, N. Y.

Correlation of Distribution of Copper and Diamonds in the Glacial Drift of the Great Lakes Region.
OLIVER C. FARRINGTON, Chicago, Ill.

The Alterations of Glacial Deposits by Later Ice-invasions.
FRANK CARNEY, Granville, Ohio.

A Demonstration of the Curvature of the Earth's Surface.
ROBERT M. BROWN, Worcester, Mass.
National Geog. Magazine, Vol. XVIII, December 17, 1907, under title of "A Simple Method of Proving that the Earth is Round."

Working Hypothesis on the Physiography of Alaska.
WALLACE W. ATWOOD, Chicago, Ill.

The Honeoye-Irondequoit Kame-Moraine.
CHARLES R. DRYER, Terre Haute, Ind.

Glacial Lake Bloomfield.
CHARLES R. DRYER, Terre Haute, Ind.

The Loesses of the Mississippi Valley.
B. SHIMEK, Iowa City, Iowa.

The Gases in Rocks.
R. T. CHAMBERLIN, Chicago, Ill. (Read by T. C. Chamberlin.)

Work of the United States Reclamation Service.
E. T. PERKINS, Chicago, Ill.

Fjords of Puget Sound and the Saguenay.
WARREN UPHAM, St. Paul, Minn.

SECTION F.

ZOOLOGY.

OFFICERS OF SECTION F.

Vice-President and Chairman of the Section.

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Sectional Committee.

E. G. CONKLIN, Vice-President, 1907; E. B. WILSON, Vice-President, 1908; C. JUDSON HERRICK, Secretary, 1906–8.
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Member of General Committee.

G. E. COGHILL, Oregon.

ADDRESSES AND PAPERS PRESENTED.

The Mechanism of Heredity.
Address by EDWIN G. CONKLIN, University of Pennsylvania Vice-President and Chairman of Section F for 1907.
Science, January 17, 1908, N. S., Vol. XXVII, No. 681, pp. 89–99.

A Contribution Toward an Experimental Analysis of the Karyokinetic Figure.
FRANK R. LILLIE.

An Experimental Study of the Rate of Regeneration in *Cassiopea xamachana*.
C. R. STOCKARD.

The Variability of Zygospores in *Spirogyra quadrata* Petit, Formed by Scalariform and by Lateral Conjugation, and Its Bearing on the Theory of Amphimixis.
L. B. WALTON.

The Cause of Dominance in Heredity and Experimental Production of Variability in Dominance.
W. L. TOWER.

The Pacific Scientific Institution.
WM. A. BRYAN.

The Biochemical Action of Copper Sulphate on Aquatic Micro-organisms
A. W. PETERS.

The Mechanics of Orientation in Some of the Lower Organisms.
S. O. MAST.

Minimal Size in Form Regulation.
C. M. CHILD.

Galvanotropism of Bacteria.
J. F. ABBOTT.

Habits, Reactions, and Mating Instincts of the "Walking-Stick," *Aplopus mayeri*.
C. R. STOCKARD.

Some Reactions of the Pomace Fly (*Drosophila ampelophila*) to External Stimuli.
F. W. CARPENTER.

Behavior of Perichaeta and Lumbricus toward Stimuli of Various Intensities.
E. H. HARPER.

The Reaction of Amphibian Embryos to Tactile Stimuli.
G. E. COGHILL.

The Phylogenetic Differentiation of the Organs of Smell and Taste
C. JUDSON HERRICK.

The Mesencephalic Root of the Trigeminus in Reptiles and Mammals.
J. B. JOHNSTON.

Epibranchial Placodes of *Ameiurus melas* and *nebulosus*.
F. L. LANDACRE.

Pinkus' Nerve in Amia and Lepidosteus. (With demonstration.)
CHARLES BROOKOVER.

The Sensory Ridges of the Lateral Line and the Primitive Pores of *Polyodon spathula*.
H. F. NACHTRIEB.

Cranial Nerve Components in Amphiuma.
H. W. NORRIS.

The Participation of Medullated Fibers in the Innervation of the Olfactory Mucous Membrane of Fishes. (With demonstration.)
R. E. SHELDON.

The Ischio-coccygeal Plexus as a Pathway for Cutaneous Innervation in the Leopard Frog.
E. H. DUNN.

Degeneration in the Ganglion Cells of Cambarus
HANSFORD MACCURDY.

On the Specific Gravity of the Constituent Parts of the Egg of Chaetopterus and the Effect of Centrifuging on the Polarity of the Egg.
FRANK R. LILLIE.

The Ovogenesis of Hydra.
E. R. DOWNING.

Early Stages in the Development of the Thymus of the Pied-billed Grebe.
HENRY F. NACHTRIEB.

A Place Mode for the Sacrum and First Haemal Arch of Necturus.
FRANK SMITH.

Note on a Trematode Parasite in a Hen's Egg from Northern Minnesota.
W. S. NICKERSON.

The Habits and Structures of the Larva of *Culex perturbans*.
J. B. SMITH.

The Development of the Excretory System of Ganoid Fishes.
JOHN H. MCCLELLAN.

On Some Isopods of the Family Dajidae from the Northwest Pacific Ocean with Descriptions of a New Species and a New Genus.
HARRIET RICHARDSON.

A Comparison between the Implantation Stages in Dipodomys and Geomys.
THOS. G. LEE.

On the Ovary and Ova of the Cuban Cave Fishes.
HENRY H. LANE

The Relation Between Habitat and Taxonomic Characters of Gryllus.
FRANK E. LUTZ.

The Ecological Succession of Birds.
CHAS. C. ADAMS.

A Statistical Study of the Midsummer Bird Life of Illinois.
S. A. FORBES.

Significant Changes in the Breeding Ranges of Certain Birds of the Ohio Valley and Lower Lake Region.
LYNDS JONES.

The Relation of Ecology to General Biological Problems.
A Symposium by H. C. COWLES, V. E. SHELFORD, C. C. ADAMS, The University of Chicago. (45 min.)

A Study of the Sex Rat o in Drosophila.
W. J. MOENKHAUS.

Inheritance of Comb Form in Poultry.
C. B. DAVENPORT.

Genetics in Swine Hybrids.
Q. I. and J. P. SIMPSON.

Inheritance of Crest and Color in Canaries. (Lantern.)
C. B. DAVENPORT.

A Litter of Short-tailed and Tail-less Puppies. (With demonstration.)
R. M. STRONG.

The Experimental Production of Germinal Variations, Methods, Precautions and Theory of Their Causation. (Lantern.)
W. L. TOWER.

Some Stages in the Embryology of Certain Degenerate Phoridae and the Supposedly Hermaphroditic Genus Termitoxenia. (Lantern.)
C. T. BRUES.

Report on Some Experiments in Transplanting Species of Leptinotarsa into New Habitats, with Remarks upon the Significance of the Mode. (Lantern.)
W. L. TOWER.

Suggestions for a Natural Classification of the Family Lymnaeidae. (Lantern.)
FRANK C. BAKER.

Pigmentation in the Feather Germs of a White Ring-dove Hybrid. (Lantern.)
R. M. STRONG.

The Sense of Smell in Birds. (Lantern.)
R. M. STRONG.

The Anatomy of a Typical Pennatulid. (Lantern.)
C. C. NUTTING.

On the Distribution of Certain Salmonidae in Wisconsin.
GEORGE WAGNER.

Leidya distorta (Leidy) Found on a New Host.
HARRIET RICHARDSON.

The Process of Heredity as Exhibited by the Development of Fundulus Hybrids.
H. H. NEWMAN.

An Important Period in the History of the Sex Cells of *Rana pipiens*.
BENNETT M. ALLEN.

The Rate of Growth of the Ovum in the Chick and the Probable Significance of White and Yellow Yolk in Vertebrate Ova.
OSCAR RIDDLE.

A Comparison of the Reactions of a Terranean and a Subterranean Species of Isopod.
A. M. BANTA.

Occurrence of the Cysticercus of *Tænia solium* in Sheep.
B. H. RANSOM.

The Chromosomes in the Gryllidae.
W. J. BAUMGARTNER.

Was the Hydroid or the Medusa the Original Form of Hydromedusae?
C. C. NUTTING.

Further Results of Heterotransplantations of Blood-Vessels.
C. C. GUTHRIE.

Muscle Attachment to the Body-Wall in the Nymphs of Anax. (With lantern.)
WM. A. RILEY.

The Skeletal Parts of the Sand-Dollar. (With lantern.)
EMILY RAY GREGORY.

Notes on *Diplosis sorghicola* Coq.
CARLETON R. BALL.

A Study of Colorado Entomostraca.
GIDEON S. DODDS.

Demonstrations.

1. The Ideal Dissecting Tray.
2. Early Stages of *Eurypauropus spinosus* Ryder.
3. Museum Cataloguing; Accession and Department Catalogue Cards.

L. B. WALTON.

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1. Early Stages in the Development of the Thymus of the Pied-billed Grebe. Reconstruction of One Stage.
2. The Sensory Ridges of the Lateral Line and the Primitive Pores of *Polyodon spathula*.

HENRY F. NACHTRIEB.

A Litter of Short-tailed and Tail-less Puppies.
R. M. STRONG.

Early Stages in the Development of Dipodomys and Other Rodents,
THOMAS G. LEE.

Karyokinetic Figures of Centrifuged Eggs.
F. R. LILLIE.

An Electric Thermo-regulator.
S. O. MAST.

Ganglion Cells on Pinkus' Nerve of Amia and Lepidosteus.
CHARLES BROOKOVER.

Medullated Nerve Fibers in the Olfactory Mucous Membrane of Fishes.
R. E. SHELDON.

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1. Demonstration Case to Illustrate the Evolution of the Lineata Group of the Genus Leptinotarsa, Showing Forms That Have Been Produced in Experiment and Sports Occurring in Nature.
2. Demonstration Case to Illustrate the Results Obtained in the Production of Sports Experimentally. Arranged to Show the Results Produced in the Stimulated Germ Cells and the Results from those not Stimulated in the Case of the Same Parent.
3. Demonstration Case to Show the Results Obtained in the Transplantation of Leptinotarsas from One Habitat into Another and the Proof that They are Different in the New Habitat as Demonstrated by the Behavior of the Modified and Unmodified Form When Crossed with a Third Species.
4. Demonstration Cases to Illustrate Results Obtained in the Study of Variability of Dominance in Crossing.

W. L. TOWER.

Abnormal Toad and Frog Larvae from Eggs Fertilized by Spermatozoa Exposed to the Roentgen Rays.
C. R. BARDEEN.

A Cheap Sharp Microtome Knife.
W. J. BAUMGARTNER.

SECTION G.

BOTANY.

OFFICERS OF SECTION G.

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in absence of

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M. B. THOMAS, Indiana.

ADDRESSES AND PAPERS PRESENTED.

Heredity and Environic Forces.
Address by D. T. MacDougal, Vice-President and Chairman of Section G for 1907.
Science, January 24, 1908, N. S., Vol. xxvii, No. 682, pp. 121–128.

The Past Season's Experiments with Anthracnose-resistant Clover.
S. M. Bain and S. H. Essary. (Read by title.)
Bulletin, Tenn. Agric. Exp. Sta.

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New or Noteworthy Peronosporales.
Guy W. Wilson.
Bulletin, Torrey Club.

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Agnes Chase.
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W. J. Beal.

Plant Zones of the Mountain Lakes in Northern Colorado.
FRANCIS RAMALEY and W. W. ROBBINS,

Rock-ridge Vegetation of Northern Colorado.
FRANCIS RAMALEY and W. W. ROBBINS.
University of Colorado, Studies, Vol. v, pp. 111–117.

A Preliminary Account of Studies in the Variability of a Unit Character in Oenothera.
R. R. GATES.

Mine Fungi.
PERLEY SPAULDING. (Read by title.)
Bulletin, Bur. Plant Industry, Dept. of Agriculture.

The Loco Investigation.
C. DWIGHT MARSH.
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Crystal Formation in Cultures of Penicillium.
ARTHUR W. DOX. (Presented by Charles Thom.)

Embryo-sac Development and Embryology of *Symplocarpus foetidus*.
C. A. ROSENDAHL.
Minnesota Botanical Studies, Third Series, Part IV.

Regeneration in Root-tips of Vicia and Phaseolus.
C. H. SHATTUCK.

Notes on *Gymnosporangium macropus*.
F. D. HEALD.
Note in *Science* N. S., 26: 219–220, 1907.

The Bud-rot of Carnations.
F. D. HEALD.
Bulletin 103, Nebr. Agr. Exp. Station.

A Principle of Elementary Laboratory Teaching for Culture Students.
CHARLES H. SHAW.
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The Influence of the Form of Carbon upon the Morphology of Penicillium Cultures.
CHARLES THOM.
Bulletin, U. S. Dept. Agriculture.

Plant Succession in Eastern Colorado.
H. L. SHANTZ.
As part of a Bulletin of the Bureau of Plant Industry.

The Influence of Wind upon the Distribution of Plants in Iowa and Adjoining Territory.
B. SHIMEK.

Some Apple Leaf-spot Fungi.
CARL P. HARTLEY.

On the Occurrence of Pith Spots in the Wood of the Soft Maple.
HERMANN VON SCHRENK. (Read by title.)

Observations on Change of Sex in *Carica papaya.*
M. J. IORNS. (Read by title.)
Science.

Studies in the Genus Gymnosporangium.
FRANK D. KERN.
Bulletin of the Torrey Botanical Club.

Vernal Aspect of the Chaparral Formation of California.
PEHR OLSSON-SEFFER. (Read by title.)
Botanical Gazette.

Periodicity in Spirogyra.
W. F. COPELAND.

Types of Some Rocky Mountain Willows.
CARLETON R. BALL. (Read by title.)

Dry Rot of Corn and its Causes.
JAMES T. BARRETT.
Illinois Experiment Station Bulletin.

The Relation of "Conjugation" and "Nuclear Migration" in the Rusts.
E. W. OLIVE.
Annals of Botany, 1908.

The Relationships of the Aecidium-cup Type of Rust.
E. W. OLIVE.

Are Canned Goods Sterile?
T. J. BURRILL.

SECTION H.

Anthropology and Psychology.

OFFICERS OF SECTION H.

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ADDRESSES AND PAPERS PRESENTED.

The Anthropology of California.
Address by A. L. KROEBER, Vice-President and Chairman of Section H for 1907.
Science, February 21, 1908, N. S., Vol. XXVII, No. 686, pp. 281-288.

Anthropology as a Subject of University and College Instruction.
FRANZ BOAS.
American Anthropologist N. S. 10, 1908, pp. 113-114.

Some Aspects of the American Shaman.
ROLAND B. DIXON.
Journal of American Folk Lore, Vol. XXI, page 12.

The Chimariko Language.
ROLAND B. DIXON.
Publications of the University of California.

On the Teaching of Anthropology to Large Classes.
ALFRED M. TOZZER.
American Anthropologist N. S. 10, 1908, pp. 113-114.

A Note upon Star-Lore among the Navajos.
ALFRED M. TOZZER.
Field Work of the Department of Anthropology, Field Museum of Natural History.

A Number-form from Folk-medicine.
CHARLES BUNDY WILSON.
American Anthropologist N. S. 10, 1908, pp. 113-114.

Some Archeological Forgeries from Michigan.
FRANCIS W. KELSEY.

The Prehistoric Habitations of the Sioux.
N. H. WINCHELL.

Recent Aspects of the Eolithic Discussion.
CHARLES PEABODY.
American Anthropologist, N. S. 10, 1908, pp. 113–114.

Report for the Committee on American Archeological Nomenclature.
CHARLES PEABODY.
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Report for the Committee on the Preservation of American Antiquities.
E. L. HEWETT.

Report for the Committee on the Concordance of American Mythology.
FRANZ BOAS.

Advance Report on the Nomenclature of Indian Linguistic Families.
F. W. HODGE.

The Genealogical Method in Anthropology.
W. H. H. RIVERS, Cambridge, England.

Field Work of the Department of Anthropology, Field Museum of Natural History.
GEORGE A. DORSEY.

Race Statistics of the University of Minnesota.
ALBERT ERNEST JENKS.

Migrations as Shown by Archeology.
Rev. STEPHEN D. PEET.

Blow Guns of the Abbott Malaysian Collection in the U. S. National Museum.
WALTER HOUGH.
Proceedings U. S. National Museum.

Catchwords for Mythological Motives.
R. LOWRIE.

The Archeology of Esmeraldas.
M. H. SAVILLE.

Further Investigation of the Archeology of Manabi.
M. H. SAVILLE.

Recent Archeological Explorations in Western Canada.
HENRY MONTGOMERY.
The American Anthropologist, January, 1908.

The Ancient Mexican Sites near Juchipila, Teuchitlan, Zapotlan, Perote, and Joalliche.
ADELA BRETON.

A Description of Certain Ruins in an Unnamed Canyon in Southeastern Utah.
FREDERICK MONSEN.

The Ancient Culture Types of Asia.
BERTHOLD LAUFER.

The Cocoanut Palm as a Historical Problem.
BERTHOLD LAUFER.

Explorations of the Seip Mound.
WILLIAM C. MILLS.

Explorations of Jackson County Rock-shelters.
WILLIAM C. MILLS.
Ohio State Arch. and Hist. Society Quarterly.

The Haliotis, or Abalone Industry of the California Coast; Preservative Laws.
Mrs. M. BURTON WILLIAMSON.
Annual Publication Historical Society, S. California, Vol. VII, Part I.

The Mythology of the Nez Perce Indians.
H. J. SPINDEN.

Ethnology of the Koskokwin Valley.
GEORGE B. GORDON.

Linguistic Variation Among the Alaskan Eskimo.
GEORGE B. GORDON.

Anthropology Past and Present.
A. H. THOMPSON.

Physical Characters of the Eskimos of the Coast West of Cape Bathurst.
V. STEFANSSON.

Social Organization and Daily Life of the Mackenzie River Eskimos.
V. STEFANSSON.

The Treatment of Disease Among the Mackenzie River Eskimos.
V. STEFANSSON.

The Brain Weight of the Filippino.
MAXIMILIAN HERZOG.

Mind and Matter in Culture.
OTIS T. MASON.

A Unique Method for Preserving the Inscriptions in our Historic Burial Grounds.
SARAH NEWCOMB MERRICK.

Present-day Beliefs in Some Medical Superstitions.
SARAH NEWCOMB MERRICK.

SECTION I.

Social and Economic Science.

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ADDRESSES AND PAPERS PRESENTED.

The Influence of Friction in Economics.
Address by CHARLES A. CONANT, Vice-President and Chairman of Section I for 1907.
Science, January 17, 1908, N. S., Vol. XXVII, No. 681, pp. 99-108.

Symposium on Economic Theory in Current Practice.

Introductory Address: The Economic Functions of Speculation.
JOHN E. CROWELL, associate editor *Wall Street Journal*, New York, and chairman of Section I, 1907-8, and vice-president.

Address of Welcome.
J. LAURENCE LAUGHLIN, The University of Chicago.

Government Ownership from the Standpoint of Political Morals.
FREDERIC C. HOWE, of Cleveland, Ohio.

Symposium on the Financial Crisis of 1907.

The Financial Crisis of 1907 and the Remedy.
CHARLES N. FOWLER, chairman of the Committee on Banking and Currency of the House of Representatives.

The Economic and Political Effects of Gold Depreciation.
BYRON HOLT, editor of *Moody's Magazine*, New York City.

Causes of the Financial Crisis of 1907.
THEODORE E. BURTON, member of Congress, Cleveland, Ohio.

Remedies for Certain Financial Conditions Now Present.
C. M. KEYS, editor *World's Work*, New York City.

Introductory Discussion: With reference to "The Probable Gold Supplies of the Next Decade."
GEORGE E. ROBERTS, formerly Director of the Mint.

Symposium on Federal Regulation of Public Health.

Introductory address.

WILLIAM H. WELCH, president of the American Association for the Advancement of Science.

Legislative Problems.

GEORGE L. SHIRAS, 3d, Washington, D. C.

Present Public Health Functions of the Federal Government.

CHARLES A. L. REED, president of the National Legislative Council of the American Medical Association.

Importance of Public Health Legislation.

F. F. WESBROOK, University of Minnesota.

Discussion.

IRVING FISHER, chairman of the Committee of One Hundred, with Reference to the Work and Plans of the Committee of One Hundred; EDWIN B. TUTEUR of the Chicago Physicians' Club; JOHN S. FULTON, for the Committee on a National Department of Health, appointed by the American Public Health Association; GEORGE SIMMONS, Editor of the *Journal* of the American Medical Association; CHAMPE S. ANDREWS, for the Public Health Defense-League; M. V. O'SHEA, University of Wisconsin; C. R. HENDERSON, The University of Chicago; Dr. CRAIG, for the Associated Fraternities of America.

SECTION K.

Physiology and Experimental Medicine.

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H. T. RICKETTS, Chicago.

ADDRESSES AND PAPERS PRESENTED.

Tendencies in Pathology.
Address by SIMON FLEXNER, Vice-President and Chairman of Section K for 1907.
Science, January 24, 1908, N. S., Vol. XXVII, No. 682, pp. 121–128.

THE FOLLOWING TITLES INCLUDE THOSE OF A SYMPOSIUM ON "IMMUNITY" UNDER THE AUSPICES OF THE SECTION AND THOSE OF A JOINT SESSION OF SECTION K AND THE SOCIETY OF AMERICAN BACTERIOLOGISTS.

A Comparative Study of the Cilium as a Key to the Structure of Contractile Protoplasm.
C. F. HODGE and O. P. DELLINGER.

Daily Life of *Amoeba proteus*.
C. F. HODGE, D. GIBBS and O. P. DELLINGER.

The Reaction of Amoeba to Stimuli of Small Area.
J. F. MCCLENDON. (By invitation.)

The Effects of Prolonged Centrifugal Force on Paramoecium.
J. F. MCCLENDON. (By invitation.)

The Relation of Plasticity to Age in the Dancing Mouse.
R. M. YERKES.

The Bacterio-agglutinating Action of Lymph under Different Conditions of Lymph Formation
B. BRANDE. (By invitation.)

The Relative Hemolytic Action of Serum and Lymph under Different Conditions of Lymph Formation
T. HUGHES. (By invitation.)

The Effect of Stimulation of the Vagi upon the Onset and Development of Rigor Mortis of the Mammalian Heart
S. J. MELTZER and D. R. JOSEPH.

The Osmotic Concentration of the Blood during Anesthesia.
A. B. LUCKHARDT. (By invitation.)

A Review of Anaphylaxis, with Especial Reference to Immunity.
M. J. ROSENAU and JOHN F. ANDERSON.
Journal of Infectious Diseases, Vol. 5, January 30, 1908, pp. 85–105.

Hypersusceptibility and Immunity.
VICTOR C. VAUGHAN.

The Hemolysins of Animal Toxins.
PRESTON KYES.

The Differentiation of Homologous Proteins by Serum Reactions.
S. P. BEEBE.

On Spirochetal Immunity.
FREDERICK G. NOVY and R. E. KNAPP.
Journal of Infectious Diseases.

Immunity in Rocky Mountain Spotted Fever.
H. T. RICKETTS and L. GOMEZ.

Artificial Immunity to Glucosides.
WILLIAM W. FORD.

Virulence of Pneumococci in Relation to Phagocytosis.
E. C. ROSENOW.

The Mechanism of Streptococcus Immunity.
GUSTAV F. RUEDIGER.

Immunity in Tuberculosis.
MAZYCK P. RAVENEL.

Chemical Aspects of Immunity.
H. GIDEON WELLS.
Archives of Internal Medicine, Vol. 1, No. 2, 1908.

Passive Diphtheritic Immunity in Rabbits.
H. M. GOODMAN.

The Changing Flora of Chronic Suppurations: Its Relation to Opsonotherapy.
A. P. OHLMACHER.

Blackhead: A Coccidial Disease of Turkeys.
P. B. HADLEY. (By invitation.)

The Cause of the So-called Germicidal Property of Milk.
M. J. ROSENAU and G. W. McCOY.

The Significance of Leucocytes and Streptococci in the Production of High-grade Milk.
MARY E. PENNINGTON.

A Note on the Occurrence of Leucocytes and Streptococci in Milk.
S. C. PRESCOTT.

SECTION L.

EDUCATION.

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D. P. MACMILLAN, Chicago.

ADDRESSES AND PAPERS PRESENTED.

The Outlook of the Section for Education.
Address by ELMER ELLSWORTH BROWN, Vice-President and Chairman of Section L for 1907.
Science, April 3, 1908, N. S., Vol. XXVII, No. 692, pp. 521–525.

The Ethical Judgments of School Children.
H. A. AIKENS.

The Practice Curve as an Educational Method.
J. MCKEEN CATTELL.
The Archives of Psychology.

Practise Curves in Learning.
W. F. DEARBORN.

The Effect of Practice on the Range of Visual Attention.
GUY MONTROSE WHIPPLE.
Psychological Review.

A Method of Concentration in Teaching Medicine.
W. T. PORTER.

The Grading of Students.
MAX MEYER.
Science.

Scales of Measurements in Education.
E. L. THORNDYKE.

The Place and Content of a Course in Biology in the High School.
G. W. HUNTER.

School Science, March, 1908.

The Scientific Basis of High School Studies.
C. DEGARMO.

School Review.

The Pedagogy of the Danish People's High Schools.
J. A. BERGSTROM.

The Teaching of Spelling as a Scientific Problem.
HENRY SUZZALLO.

An Experiment in the Teaching of Homonyms.
H. C. PEARSON.

Abstract in *Science*.

Psychological Experts in Public School Systems: The Experience of Chicago.
D. P. MACMILLAN.

Objective Measurements in the Efficiency of School Systems.
J. D. BURKS.

Reasons for the Existence of Schools of Education in American Universities.
C. W. A. LUCKEY.
The University Journal, Lincoln, Neb., February, 1908, Vol. IV, No. 5, pp. 85–87.

EXECUTIVE PROCEEDINGS.

EXECUTIVE PROCEEDINGS.

REPORT OF THE GENERAL SECRETARY.

The opening session of the meeting at the University of Chicago was held Monday, December 30, in Leon Mandel Hall, at 10 A. M. It was called to order by retiring President William H. Welch, who introduced President E. L. Nichols, who presided. Addresses of welcome were made on behalf of the University by Dean George E. Vincent, representing President Judson, and on behalf of the city by Mr. George E. Adams, vice-chairman of the local committee. President Nichols replied briefly on behalf of the association. An interesting feature of the addresses was the graceful reference of the speakers to the recent conferring of both the Copley medal and the Nobel prize on Professor A. A. Michelson, of the University of Chicago.

The address of retiring President Welch was delivered in the same hall on Monday evening and was intently followed by a large audience. After it the members of the association were received by Mrs. H. P. Judson and Dean Vincent.

The number of members officially registered for the meeting is 725. Members of affiliated societies not members of the association registered to the number of 185. It is certain that many members of the association failed to register while comparatively few from the affiliated societies registered with the permanent secretary. No account was taken of visitors not members of any society. From data available at the close of the meeting, it is fair to assume that the number of persons attending was close to 2,000.

The societies meeting in affiliation were the American Society of Naturalists, the American Mathematical Society (Chicago Branch), the American Physical Society, the American Chemical Society, the American Physiological Society, the American Society of Biological Chemists, the American Society of Zoologists (Central Branch), the Association of American Anatomists, the Association of American Geographers, the Society of American Bacteriologists, the Entomological Society of America, the Botanical Society of America, the American Psychological Association, the Western Philosophical Association, the American Anthropological Association, the American Folk Lore Society and the Bibliographical Society of America. In practically all cases one or more joint sessions of the society were held with the corresponding section of the association. In some cases the joint meeting included more than one affiliated society, and in at least one case two of the sections.

At one of these joint sessions occurred a symposium on "Co-operation in Biological Research;" at another a symposium on "Immunity." The one occurring in Mandel Hall, on Thursday, was devoted to an important and significant symposium on public health.

On Monday afternoon and Tuesday, sections A and B, with the Chicago section of the American Mathematical Society, listened to a series of addresses and discussions on the teaching of mathematics to students in engineering colleges. The large attendance to hear these addresses and discussions, together with the lively and often spicy character of the latter, fully attests the widespread and deep interest in this subject, one of great importance to engineering education. A committee was appointed to make an investigation of actual bearing on the subject and to report its finding and recommendations to the Society for the Promotion of Engineering Education. This society took steps last summer to appoint a committee of somewhat wider scope, and it is presumed that the committee appointed at Chicago will work in conjunction with that of the professional society.

Among the discussions of general interest was the very vigorous one before Section I on "The Panic of 1907, and the Monetary System of the Nation."

The American Chemical Society, in affiliation with Section C, held a large and enthusiastic meeting. Including the general papers and addresses, and the programs of the different sections of the society, over 150 papers were presented before this body. On Tuesday, Wednesday and Thursday mornings, sessions of general interest were held.

An important action of the council of the Chemical Society was the organization of the industrial chemists into a Division of Industrial Chemistry and Chemical Engineering, and the undertaking of the publication of a special journal of industrial and engineering chemistry.

The number of resolutions touching matters of general import which were adopted at the Chicago meeting was larger than usual. Of prime interest in this connection is the following letter:

THE WHITE HOUSE,
WASHINGTON, *December* 31, 1907.

"MY DEAR SIR:

"I am sending you herewith copy of a letter which on November 11th I addressed to the Governors of each of the several states relative to a proper conservation of the natural resources of this country and inviting the Governors, with their experts, to meet in conference on this subject at the White House on May 13, 14 and 15 next.

"I enclose also a copy of a letter recently received from the Chairman of the National Advisory Board on Fuels and Structural Materials, in which he suggests that in bringing this matter before the people of the country I invite the co-operation of the National Engineering Societies and other national organizations for research and development.

"The suggestion is an excellent one; and I am led to believe that these organizations can render no more important service at this time than to develop among the people of this country a realization of the fact that these resources, upon which the future as well as the present welfare of the nation depends, are being exhausted rapidly, wastefully, and, in many cases, permanently.

"I invite the co-operation of the American Association for the Advancement of Science in properly bringing this matter before the people; and it gives me added pleasure to invite you, as the President of the Association, to take part in this conference at the White House during May 13, 14 and 15 next.

"Sincerely yours,

"THEODORE ROOSEVELT.

"*The President of the American Association for the Advancement of Science.*"

Resolutions in accordance with this request were adopted as follows:

Realizing the rapid rate at which important natural resources of the country are being exhausted and the wasteful methods employed in the mining and utilization of other important mineral resources:

Resolved, That the American Association for the Advancement of Science joins President Roosevelt in calling the attention of the people of this country to the need of wisely conserving these resources for the future, as well as the present, needs of the nation; and in doing this the association asks the co-operation of its affiliated societies and other similar organizations throughout the country.

The association also urges upon the federal and state governments the importance of providing for such investigations and the enactment of such legislation as may prove necessary in preventing all unnecessary waste in the utilization of the nation's resources.

Resolved, That copies of this resolution be sent by the secretary of the association to the President of the United States, President of the Senate, and to the Speaker of the House of Representatives in Washington; to the presidents and secretaries of the societies affiliated with the association, and of other similar organizations in the United States.

Resolved, That the president of the association appoint a committee of five on the conservation of resources, this committee to take such further action in carrying out this resolution as from time to time the conditions may demand."

Other resolutions of a public character which were adopted follow:

Resolved, That the American Association for the Advancement of Science reaffirms its resolution passed at the New York meeting, favoring the establishment by Congress of the Southern Appalachian and White Mountain Forest Reserves, and reappoints the same committee to present this matter to the Speaker of the House of Representatives and the Presi-

dent of the Senate in an endeavor to secure at this time at least a beginning of this important work.

Relative to the National Bureau of Education, the following resolution was presented from Section L and adopted:

Whereas, The National Bureau of Education has for forty years rendered a much-needed service to the educational interests of the country, and

Whereas, Owing to inadequate support its growth has for many years lagged far behind the general educational growth of the country at large and far behind the growth of the needs for such service as it can render, and

Whereas, It is undertaking to meet the new demands of educators by the publication of bulletins, by the reorganization of its library and bibliographical service, and by providing a national clearing house for all kinds of needed educational information; therefore, be it

Resolved, That the American Association for the Advancement of Science earnestly recommends to Congress the enactment of legislation in regard to the National Bureau of Education that will—

1. Foster and encourage its work and enable it to expand in such a manner as to render its services to American education increasingly effective and scientific.

2. Strengthen it by additions to its present staff of specialists.

3. Enable it to secure quarters adequate for its new work and in keeping with its dignity and usefulness.

4. Provide it with means to render more complete service as a distributing center for such information as is currently needed for the improvement of education in all its grades and enable it to include the collection and dissemination of information needed in the further development of professional and technological schools and the graduate departments of our universities.

5. Raise the salaries of the commissioner and staff of experts to such a point as will enable the bureau not only to secure men of the highest grade, but to retain them permanently in its service.

Relative to research in tropical medicine, the following resolution was adopted:

Whereas, There exists at the present time in Panama an extraordinary opportunity for research work in certain phases of tropical medicine, through the existence there of well-equipped hospitals and well-trained medical men under the supervision of an expert sanitarian, himself a member of the Isthmian Canal Commission, and

Whereas, The solution of problems connected with this subject is of the highest importance to the welfare of this and other countries, be it

Resolved, That it is the sense of the American Association for the Advancement of Science that Congress at its present session should appropriate funds for the purpose of establishing a research laboratory at the Isthmus which shall devote itself to the solution of existing problems in tropical disease.

Relative to public health there was adopted the following:

Whereas, The American Association for the Advancement of Science has appointed a Committee of One Hundred on National Health, and this committee is performing a work of great importance for the welfare of the nation, be it

Resolved, That all members of this association are urged to co-operate with the commitee in its efforts to conserve and improve the health of the people and especially in its plans to increase the efficiency of the national government in dealing with the problems of public health.

The following resolution was adopted on the recommendation of Section F:

Realizing that the work in the Panama Canal is changing biological conditions in Panama and that the completion of the canal will enable the fresh-water faunæ of the two slopes to mingle freely and that many marine animals will succeed in passing the completed canal, the American Association for the Advancement of Science urges upon the President and Congress to make provision for a biological survey of the Panama Canal zone.

Since the conditions will be permanently changed as soon as the canal is completed and the work can not be satisfactorily done after the completion of the canal, there is great urgency that provisions for the work be made at once.

Resolved, That the permanent secretary be instructed to send copies of this resolution to be President, the Vice-President, the Speaker of the House and the Secretary of the Smithsonian Institution.

(Signed) C. H. EIGENMANN,
C. C. NUTTING,
Committee.

On recommendation of Section F, the Association endorsed as its own the following resolution:

Resolved, That the American Society of Vertebrate Paleontologists will aid in any way practicable those measures legislative, international and local which will prevent the now imminent extermination of the great marine vertebrata, especially the cetaceans and manatees, seals, green and other turtles on the coast of the United States or in the high seas.

The secretary of the Committee on Seismology submitted the following resolutions which were adopted:

Whereas, The organized study of earthquakes lately undertaken in other countries is leading to a better understanding of their causes and to the discovery and adoption of means for mitigating their disastrous consequences, be it

Resolved, That, in the opinion of the American Association for the Advancement of Science, the government of the United States should at once make suitable provision for the installation and maintenance of seismographs in properly distributed stations, and,

Whereas, The United States Weather Bureau is the best equipped of the government bureaus for undertaking these studies, be it further

Resolved, That in the opinon of this association the necessary appropriations should be made to the Department of Agriculture for the United States Weather Bureau, and be it further

Resolved, That a copy of these resolutions be forwarded to the Committee on Agriculture of the United States House of Representatives.

At the suggestion of the Committee on Policy, as appears below, the following resolution was adopted:

Whereas, The late Major James Carroll, M. D., U. S. A., was the first to submit voluntarily to the bite of an infected *Stegomyia* and from the bite of this mosquito suffered a severe attack of yellow fever, the effects of which led to his ultimate death, and,

Whereas, This was the first experimentally-produced case of yellow fever leading to the present knowledge of this disease, which has practically enabled its complete control, therefore, be it

Resolved, That the American Association for the Advancement of Science now in session in Chicago, Ill., recommends to the Senate and to the House of Representatives of the United States of America the passage of a bill securing to Mrs. Jennie Carroll, widow of the late Major James Carroll, of the Yellow Fever Commission of the United States Army, a special pension for the support of herself and her seven children.

REPORTS OF COMMITTEES.

ON THE DARWIN MEMORIAL.

The Darwin Memorial Committee appointed at the New York meeting, reported as follows:

To the American Association for the Advancement of Science:

Charles Darwin was born February, 1809, and the "Origin of Species" appeared in November, 1859. In celebrating the semi-centennial of the latter we have the opportunity of celebrating the centennial of the former. Your committee consequently recommends:

1. This double celebration.
2. The date of the celebration to be during Convocation Week, 1908-9.
3. That the method of celebration be as follows:

(*a*) That a morning and afternoon of the meetings of the American Association for the Advancement of Science during Convocation Week, 1908-9, be devoted to a series of addresses on various aspects of the theory of evolution, and that these be given solely by persons actively engaged in research bearing on evolution.

(*b*) That a dinner be arranged on the evening of the same day, followed by addresses of a more general nature concerning Darwin and his work.

(*c*) That all addresses be published in a Darwin Anniversary volume, to appear during 1909, the anniversary year.

(*d*) That the committee have full power to arrange the program.

4. It is recommended that the committee be authorized to raise a fund to pay the expenses of Mr. Francis Darwin or other foreign speaker or speakers.

On the Investigation of Cave Fauna of North America.

The Committee on the Investigation of the Cave Fauna of North America presented through the recorder, Professor C. H. Eigenmann, a report which will be printed later.

On Seismology.

The Committee on Seismology, through its secretary, Professor Wm. H. Hobbs, reported as follows:

Your committee organized with Professor H. F. Reid, of Johns Hopkins University, as chairman, and Professor W. H. Hobbs, of the University of Michigan, as secretary. The following sub-committees were named:

1. A committee to determine the best form or forms of seismograph for the seismological stations to be established: Messrs. Reid, Marvin and Bauer.

2. A committee of three members with power to add to its number to report as to what action is deemed desirable in reference to recommendations concerning earthquake-proof construction: Messrs. Lawson, McGee and Campbell.

3. A committee on stations. This committee is working in co-operation with the Weather Bureau, looking toward the establishment of seismographs in the stations of the Weather Bureau.

On Bibliography of Science.

The Committee on Bibliography of Science submitted the following report:

The committee appointed a year ago has secured from Dr. Haviland Field full details in regard to the work of the Concilium Bibliographicum and from Dr. Cyrus Adler a series of documents bearing on the work of the International Catalogue of Scientific Literature. There is some duplication in the work of the two institutions, but we are of the opinion that the Concilium Bibliographicum should be supported. Apart from the Swiss state and municipal subventions, the only appropriation in 1906 for its work was that of the American Association for the Advancemennt of Science. It is somewhat doubtful whether the research fund of the association should be used for bibliographical purposes; but we are inclined to recommend the continuation of this grant if there are no more urgent demands on the fund.

The members of the committee live so far apart that meetings could not be arranged during the year. We are of the opinion that an active committee on the bibliography of science could render an important service to

the association and for the advancement of science, but the members of the present committee fear that it will be impossible for them to undertake this work. We therefore recommend a new standing committee on the bibliography of science.

(Signed) R. S. WOODWARD.
C. B. DAVENPORT.
JAS. LEWIS HOWE.
J. McK. CATTELL.

ON POLICY.

The Committee on Policy through its chairman, R. S. Woodward, made the following recommendations of general interest, which were adopted:

1. That the committee on policy should in the future consist of the president, the retiring president, the treasurer, the permanent secretary and five other members.

2. That any member of the affiliated societies joining the association during the year 1908 should have his admission fee remitted and that a letter stating this fact should be addressed to all members of affiliated societies not already members of the association.

3. That the four great engineering societies (Civil, Mechanical, Electrical and Mining) and also the American Medical Society be invited to send representatives to the council of the association, and that the chairman of the committee on policy and the permanent secretary be appointed a committee to conduct the necessary correspondence.

4. That hereafter the annual volume be greatly reduced in size by omitting addresses and abstracts, and confining it simply to a list of members, constitution and the business of the meeting, and to devote the sum saved, not to exceed $850, to additional clerical help for the permanent secretary.

5. That the sum of $500, presented by an unknown client of Mr. John L. Bissell, of New York City, to the association, be invested as a permanent fund, the income to be used for the general purposes of the association.

6. That the Committee of One Hundred on Public Health appointed by Section I of the association be made a committee of the association.

7. That the council adopt a resolution concerning a pension for the widow of the late James Carroll, the said resolution to be formulated by Messrs. Welch and Howard.

8. That the council approve the application of the American Federation of Teachers of the Mathematical and Natural Sciences for affiliation with the association.

9. That the council authorize a committee to consider the feasibility of a plan suggested by Mr. Newcomb concerning the advisability of the publication of reports of progress similar to those published by the British Association.

10. That the association look forward to the time when it shall employ a permanent secretary who may devote his full time to the work of the association and who shall receive an adequate salary.

11. That the committee on the relations of the association with the

journal *Science* be discharged, and that a standing committee of three on organization and membership be appointed by the president.

One of the most earnestly discussed matters at the Chicago meeting was the relation of the association with the affiliated societies. The council reaffirmed its action taken at the Philadelphia meeting permitting sectional committees to dispense with a sectional program whenever an affiliated society meets with the section, and to turn over all technical papers to a joint program of the society and the section. In discussing this question there appeared a wide divergence of opinion as to what action was *immediately* necessary. There was reported from some of the sections a strong sentiment in favor of making this action mandatory rather than permissive. The reaffirmation was accepted as a temporary expedient, and a resolution was adopted instructing the officers of sections to confer with the officers of the corresponding societies usually meeting in affiliation with reference to programs and policy, and to report to the permanent secretary for presentation to the council at the next meeting of the association.

The importance both to the association and to science of the proper solution of this problem of affiliation was clearly recognized. Conditions influencing it are different in the case of different sections, and some degree of patience and of toleration on the part of all concerned is called for during the effort to work it out. At Chicago, the relations between the sections and the societies were of the most cordial nature, and this condition augurs well for the effort to arrive at a better working arrangement.

In accordance with various resolutions of the council the following committees were appointed by the president:

Additional members of the Committee on Policy, Messrs. Wm. H. Welch and N. L. Britton.

On preservation of the national resources, Messrs. T. C. Chamberlin, Irving Fisher, M. T. Bogert, W. F. M. Goss and Gifford Pinchot.

On organization and membership, Messrs. R. S. Woodward, L. O. Howard, and J. McK. Cattell.

Section C appointed a committee to look into the question whether the report adopted by the section some years ago regarding the spelling of chemical terms represents the best present usage, or now has the endorsement of the section. The committee named consists of Messrs. W. A. Noyes, Chairman, L. P. Kinnicutt and C. L. Parsons.

In accordance with the recommendation of the Committee on Grants there was granted $100.00 to the Concilium Bibliographicum and $100.00 to the Committee on Cave Fauna. An appropriation of $50.00 from the general fund was made to pay the expenses of the committee on seismology.

The general committee fixed the place of the next regular meeting at Baltimore and the time Convocation Week 1908-9. It also voted to hold a summer meeting, probably during the week beginning June 28, 1908, at Dartmouth College, Hanover, N. H.

F. W. McNair,
General Secretary.

REPORT OF THE TREASURER.

In compliance with Article 15 of the Constitution, and by direction of the Council, I have the honor to submit the following report, showing receipts, disbursements and disposition of funds of the Association for the year ending December 31, 1907.

Receipts have come into the keeping of the Treasurer from two sources, namely, from interest on invested funds and from Life Membership commutations. The total amount of these receipts is $1,877.31.

Disbursements made in accordance with the directions of the Council amount to $769.26.

The total amount of funds of the Association deposited in banks and subject to the order of the Treasurer, December 31, 1907, is $17,743.45.

The details of receipts, disbursements and disposition of funds are shown in the following itemized statement.

Dated April 15, 1908.

THE TREASURER IN ACCOUNT WITH THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

1907.	DR.		
Jan. 1.	To balance from last account		$16,635.40
Apr. 6.	To 26 Life Membership commutations		1,300.00
Dec. 31.	To interest received from funds deposited in banks as follows:		
	From Cambridge Savings Bank, Cambridge, Mass	$40.32	
	From Emigrant Industrial Savings Bank, New York, N. Y	119.92	
	From Metropolitan Savings Bank, New York, N. Y	117.92	
	From Union Square Savings Bank, New York, N. Y	102.26	
	From U. S. Trust Company, New York, N. Y	172.50	
	From International Banking Corporation, Washington, D. C	24.39	
			577.31
	Total		$18,512.71

THE TREASURER IN ACCOUNT WITH THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

1907.	CR.		
Jan. 22.	By grant paid to J. Arthur Harris		$100.00
March 2.	By grant paid to Charles L. Parsons		200.00
April 4.	By interest on Life Memberships paid to Permanent Secretary		269.26
May 28.	By grant paid to Concilium Bibliographicum		100.00
June 1.	By grant paid to Frederic E. Clements		100.00
Dec. 31.	By cash on deposit in banks as follows:		
	In Cambridge Savings Bank, Cambridge, Mass	$1,038.48	
	In Emigrant Industrial Savings Bank, New York, N. Y	3,116.64	
	In Metropolitan Savings Bank, New York, N. Y	3,036.93	
	In Union Square Savings Bank, New York, N. Y	2,927.76	
	In U. S. Trust Company, New York, N. Y	6,172.50	
	In International Banking Corporation, Washington, D. C	1,224.39	
	In Fifth Avenue Bank of New York	226.75	
			17,743.45
	Total		$18,512.71

I hereby certify that the foregoing account is correctly cast and properly vouched.

THEO. N. GILL,
Auditor.

L. O. HOWARD, PERMANENT SECRETARY, IN
TION FOR THE ADVANCE-
From January 3, 1907, *to*

DR.

To balance from last account		$9,789.19
Admission fees	$3,825.00	
Annual dues, 1907	5,699.00	
Annual dues, 1908	9,440.00	
Annual dues, previous years	307.00	
Life membership fees	1,469.00	
		20,740.00
Publications	$11.60	
Binding	4.00	
Miscellaneous receipts including gifts, interest, etc	883.10	
		898.70

$[illegible].89

ACCOUNT WITH THE AMERICAN ASSOCIAMENT OF SCIENCE.
January 6, 1908.

CR.

By publications:		
To publishers Science	$8,338.00	
Author's extras	155.25	
Preliminary announcements (New York and Chicago	298.87	
New York pamphlet	154.45	
New York program	193.20	
Balance on Vol. LV	297.15	
		$9,436.92
By expenses (part) New York and (part) Chicago meetings:		
Secretaries expenses and commutation	$762.44	
Stenographers, clerks and general expenses	313.41	
		1,075.85
By general expenses, including propaganda:		
Postage	$866.90	
Express and telegrams	45.95	
Extra clerical help	226.02	
Expenses of circularizing American Chemical Society	112.57	
Circulars, forms, stationery, and office supplies	351.00	
		1,602.44
By moving back volumes New York to Washington, installing same, and moving effects Boston to Washington:		
Packing, and moving books from Columbia University to Penna. R. R.	$87.60	
Freight to Washington and transfer to Smithsonian Institution	164.69	
Preparing storage room, labor, shelving, etc.	119.50	
Packing boxes and moving effects from Boston	59.03	
Transfer Washington	9.83	
		440.65
By salaries:		
Permanent Secretary	$1,500.00	
Assistant Secretary	750.00	
Assistant Secretary	130.00	
		2,380.00
By miscellaneous disbursements:		
Transferred to treasurer	$1,300.00	
Overpaid dues returned and cheques returned by bank	42.00	
Walter Reed Memorial fund	100.00	
Darwin Memorial committee	6.50	
		1,448.50
By balance to new account		15,043.53
		$31,427.89

I hereby certify that I have examined this account, and that it is correctly cast and properly vouched for. The balance of $15,043.53 was on deposit with the following Washington institutions:

American National Bank	$9,905.56
National Savings and rust Company	1,180.78
American Security and Trust Company	3,957.19

THEO. N. GILL,
Auditor.

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PROCEEDINGS

OF

The American Association

FOR THE

ADVANCEMENT OF SCIENCE,

FIFTY-EIGHTH MEETING

HELD AT

CHICAGO, ILLINOIS,

DECEMBER, 1907,-JANUARY, 1908.

PUBLISHED BY THE PERMANENT SECRETARY,

1908.